FOSTER WHEELER ENVIRONMENTAL CORPORATION

FOURTH LONG-TERM SOIL VAPOR SAMPLING RESULTS, JANUARY 2000

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JET PROPULSION LABORATORY
4800 Oak Grove Drive
Pasadena, California 91109



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AT THE

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4800 Oak Grove Drive Pasadena, California 91109

Prepared by



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April 2000



November 2, 2000

Refer to: GEN20001102

NASA Management Office Attention: Peter Robles M/S: 180-801 4800 Oak Grove Drive Pasadena, California 91109

Subject: Long Term Quarterly Soil Vapor Monitoring Reports, Events 1

through 5.

Dear Peter:

Enclosed are 16 copies of each of the subject reports for distribution.

If you have any questions, or need further information, please feel free to contact me at 818-354-0180.

Sincerely

Charles L. Buril

Environmental Affairs Office – Manager

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1.0 INTRODUCTION

Presented in this report are the results of the fourth long-term soil vapor sampling event completed as part of the long-term monitoring program being conducted at the NASA-Jet Propulsion Laboratory (JPL) for Operable Unit 2 (OU-2). The purpose of this program is to monitor the horizontal and vertical distributions of volatile organic compound (VOC) vapors in the vadose zone beneath the JPL site. From January 17 through January 23, 2000, Foster Wheeler Environmental Corporation (Foster Wheeler) personnel collected soil-vapor samples from the deep soil vapor monitoring well Nos. 25 through 28 and Nos. 32 through 39 at the locations shown in Figure 1-1.

All soil vapor samples collected during the event were analyzed for VOCs by HP Labs in an on-site laboratory that is certified by the California Department of Health Services (CDHS). The analyses were performed in accordance with EPA Method 8010/8020 and the California Regional Water Quality Control Board, Los Angeles Region (RWQCB), protocols and guidance.

Sampling procedures are described in Section 2.0, and a summary of all VOCs detected during this fourth long-term soil vapor sampling event, including locations and depths, is contained in Section 3.0. The soil vapor data evaluation report for all samples analyzed during this sampling event is located in Appendix A and summarized in Section 4.0. Cited references are listed in Section 5.0. Laboratory reports for all samples analyzed, along with chain-of-custody forms, are included in Appendix B. The initial three-point calibration data and the daily calibration-verification standards for each day's sampling are also included in this appendix. Contained in Appendix C is a summary of soil-vapor results from all events conducted during the long-term monitoring program.

2.0 SOIL VAPOR SAMPLING PROCEDURES

During January 2000, soil-vapor samples were collected and analyzed from deep soil vapor monitoring well Nos. 25 through 28 and Nos. 32 through 39. A description of how the soil-vapor wells were constructed was presented in a previous report (FWENC, 2000a), and well construction details are summarized in Table 2-1. One hundred depth-specific vapor samples, including 16 collocated duplicate samples were collected and analyzed for 25 primary target VOC compounds in accordance with the RWQCB (1997) guidance.

Soil-vapor samples were withdrawn from the soil through the sampling tips and 1/8-inch-outside diameter (OD) Nylaflow® tubing using calibrated, gas-tight, 60-cubic-centimeter (cc) sterile syringes fitted with a three-way on-off valve. Prior to collecting the soil-vapor sample, four volumes of the length of the tubing were purged to flush the tubing and fill it with in-situ soil vapor. Since each foot of tubing has an internal volume of 1 cc, the total volume purged was easily measured with the calibrated syringes. Following purging, a 60-cc soil-vapor sample was collected in the syringe, the valve turned to the off position, and transferred immediately to the on-site mobile laboratory for analysis. During sampling, neither water vapor nor condensation was observed in the transparent sampling syringes. Because the purge and sample volumes were small, a vacuum pump was not required to evacuate the tubing or to collect a soil-vapor sample. To demonstrate reproducibility of results, a duplicate soil-vapor sample was collected and analyzed after every five environmental samples.

Samples collected were analyzed on-site in a mobile laboratory certified (Certification No. 1745) by the CDHS to perform analyses by EPA Methods 8010 and 8020 for the parameters listed in Table 2-2. The time between sample collection and analysis was, at most, only a few minutes.

3.0 ANALYTICAL RESULTS

The results from the remedial investigation (RI) for OU-2 indicated that four VOCs were more frequently detected in soil-vapor samples at elevated concentrations relative to other VOCs. These four VOCs are carbon tetrachloride (CCl₄), 1,1,2-trichloro-1,2,2-trifluroroethane (Freon 113), trichloroethene (TCE), and 1,1-dichloroethene (1,1-DCE). Carbon tetrachloride and Freon 113 were detected in most soil-vapor samples where VOCs were present, and frequently the only VOCs detected. Carbon tetrachloride was usually detected at higher concentrations than Freon 113. The frequency of detection, concentrations, and horizontal and vertical distribution of these four major VOCs are thoroughly discussed and presented in the OU-2 RI report (FWENC, 1999a).

The VOCs most frequently detected during this fourth long-term sampling event were, as in the past, CCl₄, Freon 113, TCE, and 1,1-DCE. In general, concentrations measured during this event are similar to those measured during the prior sampling event. Furthermore, many concentrations measured during this event are substantially lower than those measured during the OU-2 RI, probably as a result of the soil vapor extraction pilot test, which was shut down on September 29, 1999, and is currently on standby (FWENC, 1999b). Three other VOCs, chloroform, 1.1.1trichloroethane (1,1,1-TCA), and trichlorofluormethane (Freon 11) were also detected during this sampling event. Chloroform is as detected in six soil-vapor wells (Nos. 26, 33, 34, 36, 37, and 38), 1,1,1-TCA was detected in two wells (Nos. 33 and 36), and Freon 11 was detected in four wells (Nos. 27, 36, 37, and 38). Concentrations of these compounds were generally low relative to those of other compounds detected [chloroform: 1.3 to 16 micrograms per liter of vapor (µg/Lvapor); 1,1,1-TCA: 1.0 to 106 μg/L-vapor; Freon 11: 1.0 to 1.5 μg/L-vapor]. A summary of the analytical results for all samples collected during this sampling event is presented in Table 3-1, and the laboratory reports for each day's sampling are presented in Appendix B-1. Chain-ofcustody forms are included in Appendix B-2. Data from all long-term monitoring events conducted to date are summarized in Appendix C.

Locations of detections with depth for CCl₄, Freon 113, TCE, and 1,1-DCE are shown in Figures 3-1, 3-2, 3-3, and 3-4, respectively. Total VOC concentrations with depth are presented in Figure 3-5, and the estimated horizontal and vertical distribution of total VOCs along a section through the north-central part of the site (where VOC concentrations were found to be the highest during the OU-2 RI) is presented in Figure 3-6. Groundwater elevations shown in Figure 3-6 are based on monitoring well water-level information for December 16, 1999, that is contained in the groundwater monitoring report for November-December 1999 (FWENC, 2000b).

4.0 QUALITY ASSURANCE AND QUALITY CONTROL

Presented in this section is a brief summary of the quality assurance and quality control (QA/QC) procedures followed during the fourth long-term soil vapor sampling event. A more thorough discussion on the QA/QC processes and data evaluation are presented in Appendix A, Soil Vapor Data Evaluation Report.

All sample analyses were performed using an external, three-point standard calibration method (Appendix B-3). For most target analytes, both detectors on the gas chromatograph (GC) were calibrated over a range equivalent to 2 to 150 µg/L analyte in soil vapor. Analytical system performance was verified at the beginning of each analytical day with an "opening standard" and a "closing standard" after the last environmental sample analysis for the day. A "continuing standard" was analyzed after the tenth environmental sample run that day. If ten or fewer samples were analyzed during the day, the closing standard substituted for the continuing standard. Results of the daily opening, closing, and continuing (if applicable) standards are presented in Appendix B-4.

During each analytical day, the environmental sample analyses were bracketed by check standards which verified acceptable system performance for the analytes listed in the daily calibration data summary tables (Appendix B-4). Response factors (RF) calculated from the opening standard results were within ±15 percent of the mean calibration factors calculated from initial calibration results. Results for closing standards and continuing standards were within ±20 percent of initial calibration results, except for these continuing standards: 1,2-dichloroethane on January 17 [34.7 percent relative standard deviation (%RSD)], m&p-xylenes on January 19 (26.5 %RSD), and m&p-xylenes on January 20 (32.9 %RSD). Results for the compounds and dates listed above, should be qualified (J⁺) because of excessive instrumental drift. However, because of the positive bias, non-detects would not be qualified. Therefore, because none of these compounds were detected, no data were qualified because of standardization problems or instrumental drift. Percent differences between analyte-specific response factors were always within applicable control limits.

Field blanks of ambient air from inside the field laboratory trailer were analyzed immediately after the opening verification standard and were clean in all cases. No matrix spikes or laboratory replicates were required.

Three surrogate compounds (1,4-difluorobenzene, chlorobenzene, and 4-bromofluorobenzene) were injected into the GC along with the environmental samples as a QA/QC check on recovery limits. In accordance with RWQCB (1997) protocols, surrogate recoveries should be in the range of 75 to 125 percent. All surrogate recoveries obtained during this sampling event satisfied this criteria by a wide margin, usually within a recovery range of 86 to 110 percent.

No sample analysis data obtained during this sampling event were rejected as unusable. Overall, the assessment of soil vapor and corresponding control sample data indicate that data quality objectives were achieved in terms of precision, accuracy, representativeness, comparability, and completeness for all analytes sampled.

5.0 REFERENCES

- 1. FWENC (Foster Wheeler Environmental Corporation). 1999a. Final Remedial Investigation Report for Operable Unit 2: Potential On-Site Contaminant Source Areas. Volume 1. November.
- 2. FWENC (Foster Wheeler Environmental Corporation). 1999b. Draft Feasibility Study Report for Operable Unit 2: Potential On-Site Contaminant Source Areas. November.
- 3. FWENC (Foster Wheeler Environmental Corporation). 2000a. First Long-Term Soil-Vapor Sampling Results, October 1998. February.
- 4. FWENC (Foster Wheeler Environmental Corporation). 2000b. Quarterly Groundwater Monitoring Results, November-December 1999. March.
- 5. RWQCB (California Regional Water Quality Control Board, Los Angeles Region). 1997. *Interim Guidance for Active Soil Gas Investigation*. February 25.

TABLES

TABLE 2-1
SUMMARY OF CONSTRUCTION DETAILS
FOR DEEP SOIL VAPOR MONITORING WELLS

Soil-Vapor Well Number	Date Drilling Completed	Date Vapor Well Installed	Drilling Method	Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
25	3/31/97	3/31/97	Sonic	202	1	20	1199.6	1179.6
					2	40		1159.6
					3	60		1139.6
					4	85		1114.6
					5	100		1099.6
					6	120		1079.6
					7	145		1054.6
					8	165		1034.6
					9	180		1019.6
					10	190		1009.6
26	3/27/97	3/28/97	Sonic	206	1	20	1201.8	1181.8
					2	35		1166.8
					3	55		1146.8
					4	80		1121.8
					5	100		1101.8
					6	115		1086.8
					7	140		1061.8
					8	160		1041.8
					9	180		1021.8
					10	195		1006.8
27	3/18/97	3/18/97	Sonic	214	1	20	1214.2	1194.2
					2	35		1179.2
					3	60		1154.2
					4	85		1129.2
					5	100		1114.2
					6	120		1094.2
					7	140		1074.2
					8	160		1054.2
					9	180		1034.2
					10	205		1009.2

TABLE 2-1
SUMMARY OF CONSTRUCTION DETAILS
FOR DEEP SOIL VAPOR MONITORING WELLS

Soil-Vapor Well Number	Date Drilling Completed	Date Vapor Well Installed	Drilling Method	Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
28	3/13/97	3/14/97	Sonic	179	1	20	1176.7	1156.7
					2	45		1131.7
					3	65		1111.7
					4	80		1096.7
					5	105		1071.7
					6	120		1056.7
					7	140		1036.7
					8	160		1016.7
32	3/29/98	3/29/98	Sonic	210	1	25	1206.6	1181.6
					2	40		1166.6
					3	55		1151.6
					4	70		1136.6
					5	90		1116.6
					6	115		1091.6
					7	135	•	1071.6
					8	155		1051.6
					9	180		1026.6
					10	195		1011.6
33	3/31/98	4/1/98	Sonic	213	1	20	1214.0	1194.0
					2	40		1174.0
					3	60		1154.0
					4	85	-	1129.0
					5	105		1109.0
			,		6	120		1094.0
					7	140		1074.0
					8	160		1054.0
					9	180		1034.0
					10	200		1014.0

TABLE 2-1
SUMMARY OF CONSTRUCTION DETAILS
FOR DEEP SOIL VAPOR MONITORING WELLS

Soil-Vapor Well Number	Date Drilling Completed	Date Vapor Well Installed	Drilling Method	Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
34	4/8/98	4/8/98	Sonic	135	1	20	1164.3	1144.3
					2	. 35		1129.3
					3	50		1114.3
					4	65		1099.3
					5	80		1084.3
					6	95		1069.3
					7	108		1056.3
					8	118		1046.3
35	4/14/98	4/14/98	Sonic	162.5	1	20	1183.2	1163.2
					2	35		1148.2
					3	50		1133.2
					4	60		1123.2
		•			5	80		1103.2
					6	95		1088.2
					7	110		1073.2
			*		8	125		1058.2
					9	140		1043.2
					10	155		1028.2
36	3/27/98	3/27/98	Sonic	117	1	20	1232.8	1212.8
	5.2.7.				2	35		1197.8
					3	55		1177.8
					4	75		1157.8
					5	92		1140.8
37	4/7/98	4/7/98	Sonic	193	1	25	1195.7	1170.7
•					2	40		1155.7
					3	60		1135.7
					4	80		1115.7
					5	100		1095.7
					6	120		1075.7
					7	140		1055.7

TABLE 2-1 SUMMARY OF CONSTRUCTION DETAILS FOR DEEP SOIL VAPOR MONITORING WELLS

Soil-Vapor Well Number	Date Drilling Completed	Date Vapor Well Installed	Drilling Method	Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
					8	155		1040.7
					9	170		1025.7
					10	185		1010.7
38	4/15/98	4/15/98	Sonic	178.5	1	25	1185.6	1160.6
					2	45		1140.6
					3	65		1120.6
					4	80		1105.6
					5	95		1090.6
					6	110		1075.6
					7	125		1060.6
					8	140		1045.6
					9	155		1030.6
					10	170		1015.6
39	4/17/98	4/17/98	Sonic	138	1	20	1144.1	1124.1
					2	35		1109.1
					3	50		1094.1
					4	70		1074.1
					5	85		1059.1
					6	100		1044.1
					7	110		1034.1
					8	120		1024.1
					9	130		1014.1

Notes:

amsl - Above mean sea level. bgs - Below ground surface. ft - Feet.

TABLE 2-2
SUMMARY OF PRIMARY TARGET COMPOUNDS
FOR ANALYSES PERFORMED ON SOIL-VAPOR SAMPLES

Parameter	Method	Container	Maximum Holding Time	Detection Limits
Volatile Organic Compounds	8010/8020	Syringe	15 minutes	
Benzene				1.0 μg/L
Vinyl chloride				1.0 μg/L
Carbon tetrachloride				1.0 μg/L
1,2-Dichloroethane				1.0 μg/L
Trichloroethene				1.0 μg/L
1,1-Dichloroethene				1.0 μg/L
1,1,1-Trichloroethane				1.0 μg/L
Bromomethane				1.0 μg/L
Chloroethane			,	1.0 μg/L
Chloroform				1.0 μg/L
trans-1,2-Dichloroethene				1.0 μg/L
cis-1,2-Dichloroethene				1.0 μg/L
Dichloromethane				1.0 μg/L
1,1-Dichloroethane				1.0 μg/L
Ethylbenzene				1.0 μg/L
1,1,2-Trichloroethane				1.0 μg/L
1,1,1,2-Tetrachloroethane				1.0 μg/L
1,1,2,2-Tetrachloroethane				1.0 μg/L
Tetrachioroethene				1.0 μg/L
Toluene				1.0 μg/L
m,p-Xylenes				1.0 μg/L
o-Xylene				1.0 μg/L
Trichlorofluoromethane (Freon 11)				1.0 μg/L
Dichlorodifluoromethane (Freon 12	2)			1.0 μg/L
Trichlorotrifluoroethane (Freon 113	3)			1.0 μg/L

TABLE 3-1

(Concentrations in µg/L-vapor)

Soil Vapor Well	Depth		Sample							
Number	(ft bgs)	Date	Number	CCI ₄	Freon 113	TCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
25	20	1/17/00	VPSV-918	ND	ND	ND	ND	ND	ND	ND
25	40	1/17/00	VPSV-919	ND	ND	ND	ND	ND	ND	ND
25	60	1/17/00	NS	Р	P	Р	Р	Р	Р	P
25	85	1/17/00	NS	Р	P	Р	P	P	Р	P
25	100	1/17/00	NS	Р	P	Р	P	Р	Р	P
25	120	1/17/00	NS	Р	P	Р	P	P	Р	P
25	145	1/17/00	VPSV-920	1.0	ND	ND	ND	ND	ND	ND
25	165	1/17/00	NS	Р	P	Р	P	P	Р	P
25	180	1/17/00	VPSV-921	1.0	1.5	ND	ND	ND	ND	ND
25	190	1/17/00	VPSV-922	1.2	ND	ND	ND	ND	ND	ND
25	190	1/17/00	VPSV-923(DUP)	1.1	ND	ND	ND	ND	ND	ND
26	20	1/17/00	NS	Р	Р	Р	P	Р	Р	P
26	35	1/17/00	VPSV-924	ND	ND	1.5	ND	ND	ND	ND
26	55	1/17/00	NS	Р	P	Р	P	Р	P	Р
26	80	1/17/00	NS	Р	P	Р	P	P	Р	P
26	100	1/17/00	NS	Р	P	Р	P	P	Р	Р
26	115	1/17/00	VPSV-925	6.9	ND	ND	ND	ND	ND	ND
26	140	1/17/00	VPSV-926	11	1.2	1.7	1.1	1.5	ND	ND
26	160	1/17/00	VPSV-927	11	2.9	1.8	1.3	1.3	ND	ND
26	180	1/17/00	VPSV-928	5.4	3.5	5.7	ND	ND	ND	ND
26	180	1/17/00	VPSV-929(DUP)	4.9	3.6	5.5	ND	ND -	ND	ND
26	195	1/17/00	NS	Р	Р	Р	Р	Р	Р	Р
27	20	1/18/00	VPSV-930	ND	ND	ND	ND	ND	ND	ND
27	35	1/18/00	VPSV-931	ND	ND	ND	ND	ND	ND	ND
27	60	1/18/00	VPSV-932	ND	3.4	ND	ND	ND	ND .	ND
27	85	1/18/00	VPSV-933	3.0	2.6	ND	ND	ND	ND	ND
27	100	1/18/00	VPSV-934	13	1.4	ND	ND	ND	ND	ND
27	100	1/18/00	VPSV-935(DUP)	15	1.7	ND	ND	ND	ND	ND
27	120	1/18/00	VPSV-936	1.6	ND	ND	ND	ND	ND	ND

TABLE 3-1

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl ₄	Freon 113	TCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
27	140	1/18/00	VPSV-937	10	2.1	ND	ND	ND	ND	ND
27	160	1/18/00	VPSV-938	2.5	ND	ND	ND	ND	ND	ND
27	180	1/18/00	VPSV-939	27	2.8	2.6	ND	ND	ND	ND
27	205	1/18/00	VPSV-940	11	5.4	2.9	ND	ND	ND	1.2
27	205	1/18/00	VPSV-941(DUP)	9.2	5.3	2.2	ND	ND	ND	1.2
28	20	1/18/00	VPSV-942	ND	ND	ND	ND	ND	ND	ND
28	45	1/18/00	NS	Р	P	Р	P	Р	P	Р
28	65	1/18/00	NS	Р	P	Р	P	Р	Р	P
28	80	1/18/00	VPSV-943	ND	ND	ND	ND	ND	ND	ND
28	105	1/18/00	VPSV-944	1.1	ND	ND	ND	ND	ND	ND
28	120	1/18/00	NS	Р	Р	Р	P	Р	P	P
28	140	1/18/00	NS	Р	P	Р	P	P	Р	P
28	160	1/18/00	NS	Р	Р	Р	Р	Р	Р	Р
32	25	1/21/00	VPSV-984	ND	ND	ND	ND	- ND	ND	ND
32	40	1/21/00	VPSV-985	ND	ND	ND	ND	ND	ND	ND
32	55	1/21/00	VPSV-986	ND	ND	ND	ND	ND	ND	ND
32	70	1/21/00	VPSV-987	ND	2.7	ND	ND	ND	ND	ND
32	90	1/21/00	VPSV-988	ND	ND .	ND	ND	ND	ND	ND
32	90	1/21/00	VPSV-989(DUP)	ND	ND .	ND	ND	ND	ND	ND
32	115	1/21/00	NS	Р	P	Р	P	P	Р	P
32	135	1/21/00	NS	Р	P	Р	P	P	P	P
32	155	1/21/00	VPSV-990	22	51	ND	ND	ND	ND	ND
32	180	1/21/00	VPSV-991	1.6	ND	1.0	ND	ND	ND	ND
32	195	1/21/00	VPSV-992	ND	ND	ND	- ND	ND	ND	ND
33	20	1/19/00	VPSV-945	ND	4.2	ND	ND	ND	ND	ND
33	40	1/19/00	VPSV-946	6.1	86	7.7	38	ND	1.0	ND
33	40	1/19/00	VPSV-947(DUP)	6.0	92	6.6	39	ND	1.1	ND
33	60	1/19/00	VPSV-948	14	4.1	2.1	5.9	ND	ND	ND

TABLE 3-1

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl ₄	Freon 113	TCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
33	85	1/19/00	VPSV-949	33	7.0	ND	4.7	ND	ND	ND
33	105	1/19/00	VPSV-950	69	18	ND	4.3	ND	ND	ND
33	120	1/19/00	VPSV-951	101	17	ND	6.5	ND	ND	ND
33	140	1/19/00	VPSV-952	19	6.7	ND	1.5	5.6	ND	ND
33	140	1/19/00	VPSV-953(DUP)	17	6.5	ND	1.3	5.4	ND	ND
33	160	1/19/00	NS `	Р	P	Р	Р	Р	P	Р
33	180	1/19/00	NS	Р	P	Р	P	Р	Р	Р
33	200	1/19/00	VPSV-954	1.8	ND	ND	ND	ND	ND	ND
34	20	1/20/00	VPSV-969	ND	ND	ND	ND	ND	ND	ND
34	35	1/20/00	VPSV-970	4.7	ND	ND	ND	ND	ND	ND
34	35	1/20/00	VPSV-971(DUP)	4.5	ND	ND	ND	ND	ND	ND
34	50	1/20/00	NS	Р	Р	Р	Р	Р	Р	Р
34	65	1/20/00	VPSV-972	ND	ND	ND	ND	ND	ND	ND
34	80	1/20/00	VPSV-973	ND	ND	ND	ND	ND	ND	ND
34	95	1/20/00	VPSV-974	ND	ND	ND	ND	ND	ND	ND
34	108	1/20/00	VPSV-975	14	ND	ND	ND	ND	ND	ND
34	118	1/20/00	VPSV-976	53	4.4	ND	1.5	4.0	ND	ND
34	118	1/20/00	VPSV-977(DUP)	48	4.2	ND	1.5	3.3	ND	ND
35	20	1/20/00	VPSV-960	ND	ND	ND	ND	ND	ND	ND
35	35	1/20/00	VPSV-961	ND	ND	ND	ND	ND	ND	ND
35	50	1/20/00	NS	Р	Р	Р	₽	Р	P	Р
35	60	1/20/00	VPSV-962	ND	ND	ND	ND .	ND	ND	ND
35	80	1/20/00	VPSV-963	ND	ND	ND	ND	ND	ND	ND
35	95	1/20/00	VPSV-964	1.3	ND	ND	ND	ND	ND	ND
35	95	1/20/00	VPSV-965(DUP)	1.5	ND	ND	ND	ND	ND	ND
35	110	1/20/00	VPSV-966	ND	ND	ND	ND	ND	ND	ND
35	125	1/20/00	VPSV-967	ND	1.4	ND	ND	ND	ND	ND
35	140	1/20/00	VPSV-968	8.5	15	2.4	ND	ND	ND	ND
35	155	1/20/00	NS	Р	Р	Р	Р	Р	Р	Р

TABLE 3-1

(Concentrations in $\mu g/L$ -vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
36	20	1/19/00	NS	Р	Р	Р	Р	Р	P	Р
36	35	1/19/00	VPSV-955	89	1.2	23	3.3	2.8	55	ND
36	55	1/19/00	VPSV-956	178	2.3	44	7.0	2.3	106	ND
36	75	1/19/00	VPSV-957	66	4.6	5.0	3.8	11	26	1.3
36	92	1/19/00	VPSV-958	24	8.1	ND	2.4	14	2.0	ND
36	92	1/19/00	VPSV-959(DUP)	23	8.2	ND	2.6	16	1.7	ND
37	25	1/21/00	VPSV-978	ND	ND	ND	ND	ND	ND	ND
37	40	1/21/00	VPSV-979	2.8	1.1	ND	ND	ND	ND	ND
37	60	1/21/00	VPSV-980	ND	ND	ND	ND	ND	ND	ND
37	80	1/21/00	VPSV-981	1.9	ND	ND	ND	ND	ND	ND
37	100	1/21/00	VPSV-982	15	3.0	3.4	1.2	1.7	ND	ND
37	100	1/21/00	VPSV-983(DUP)	13	3.1	2.6	1.3	1.5	ND	ND
37	120	1/22/00	VPSV-993	8.8	3.7	3.8	1.7	1.9	ND	1.6
37	140	1/22/00	VPSV-994	4.1	2.6	ND	1.4	ND	ND	ND
37	140	1/22/00	VPSV-995(DUP)	4.3	2.5	ND	1.2	ND	ND	ND
37	155	1/22/00	VPSV-996	5.8	2.2	ND	1.3	ND	ND	1.1
37	170	1/22/00	VPSV-997	6.0	2.3	1.3	1.6	ND	ND	1.1
37	185	1/22/00	VPSV-998	11	5.2	3.4	1.9	ND	ND	1.1
38	25	1/22/00	VPSV-999	ND	ND	ND	ND	ND	ND	ND
38	45	1/22/00	VPSV-1000	ND	ND	ND	ND	ND	ND	ND
38	45	1/22/00	VPSV-1001(DUP)	ND	ND	ND	ND	ND	ND	ND
38	65	1/22/00	VPSV-1002	ND	ND	ND	ND	ND	ND	ND
38	80	1/22/00	VPSV-1003	ND	ND	ND	ND	ND	ND	ND
38	95	1/22/00	NS	Р	Р	Р	P	P	Р	P
38	110	1/22/00	VPSV-1004	8.8	6.0	1.5	ND	1.7	ND	ND
38	125	1/22/00	VPSV-1005	4.5	4.6	ND	ND	ND	ND	ND
38	140	1/22/00	NS	W	W	W	W	W	W	W
38	155	1/22/00	VPSV-1006	6.6	4.0	1.0	1.3	1.3	ND	1.5

TABLE 3-1

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl ₄	Freon 113	TCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
38	155	1/22/00	VPSV-1007(DUP)	6.6	4.1	1.0	1.3	1.5	ND	1.5
38	170	1/22/00	VPSV-1008	6.7	6.3	3.2	1.4	ND	ND	1.0
39	20	1/23/00	VPSV-1009	ND	ND	ND	ND	ND	ND	ND
39	35	1/23/00	VPSV-1010	ND	ND	ND	ND	ND	ND	ND
39	50	1/23/00	VPSV-1011	ND	ND	ND	ND	ND	ND	ND
39	70	1/23/00	VPSV-1012	ND	ND	ND	ND.	ND	ND	ND
39	70	1/23/00	VPSV-1013(DUP)	ND	ND	ND	ND	ND	ND	ND
39	85	1/23/00	VPSV-1014	5.8	44	1.7	ND	ND	ND	ND
39	100	1/23/00	VPSV-1015	7.6	51	2.3	ND	ND	. ND	ND
39	110	1/23/00	VPSV-1016	11	52	2.8	ND	ND	ND	ND
39	120	1/23/00	NS	Р	P	Р	P	Р	P	Р
39	130	1/23/00	VPSV-1017	1.5	7.9	10	ND	ND	ND	ND

Notes:

bgs - Below ground surface.

DUP - Duplicate samples.

ft - feet.

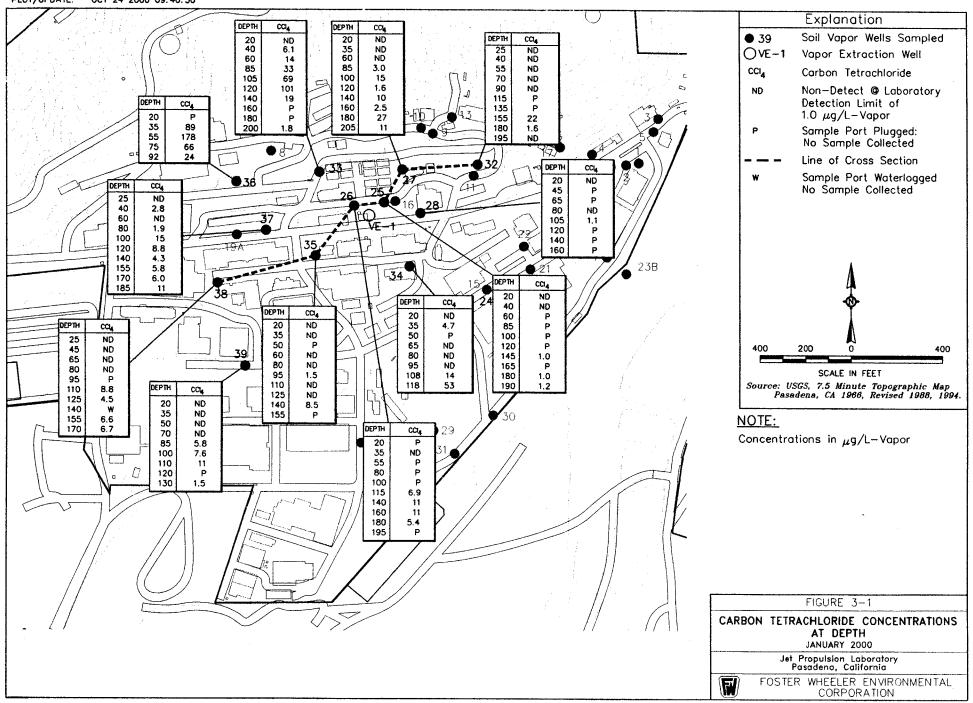
ND - Not detected.

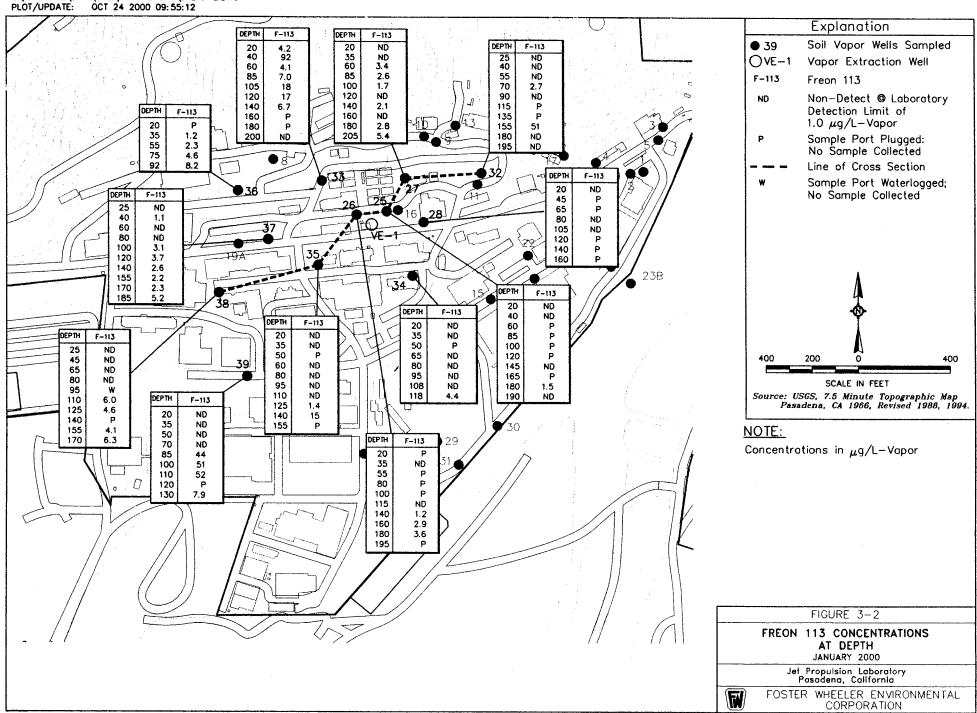
NS - Not sampled.

P - Sampling port plugged.

W - Sampling port inundated with water.

FIGURES

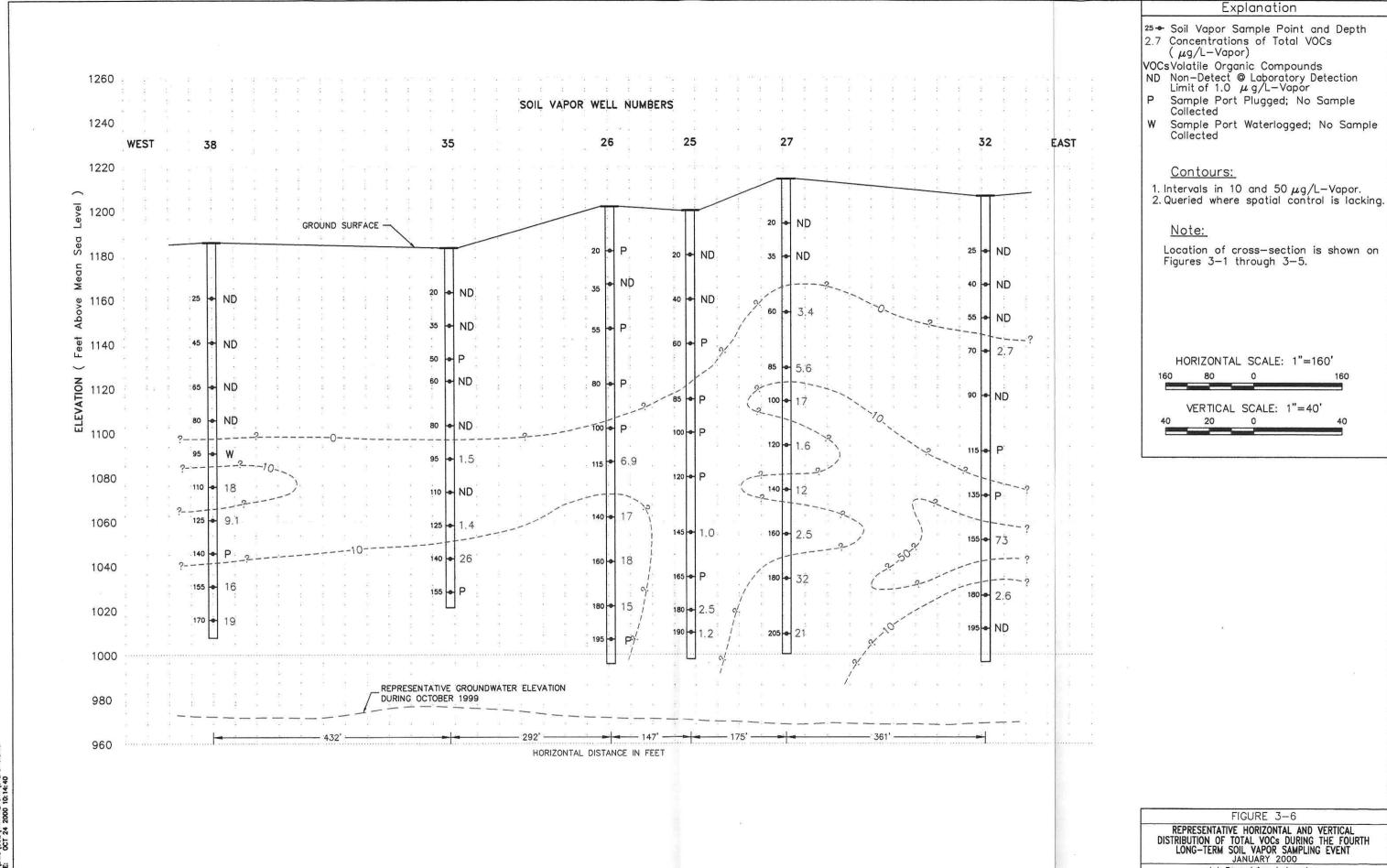




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APPENDIX A SOIL VAPOR DATA EVALUATION REPORT FOURTH LONG-TERM SAMPLING EVENT

SOIL VAPOR DATA EVALUATION REPORT FOURTH LONG-TERM SAMPLING EVENT

I. INTRODUCTION

Summarized in this report is Foster Wheeler Environmental's review and assessment of the analytical data package generated from on-site gas chromatographic analyses of soil vapor samples that were collected by Foster Wheeler during mid-January of 2000, from the JPL site near Pasadena, California. The field sampling and analytical work was performed under a long-term program of quarterly soil vapor collection and testing. On-site analysis for volatile organic compounds (VOCs) was performed by HP Labs in their DOHS-certified mobile laboratory by Allen Glover with internal data review conducted by Dr. James Picker, both of HP Labs. The resulting final data packages were carefully reviewed by Foster Wheeler Environmental's Principal Scientist/Project Chemist who prepared this summary report.

During January 17-23 of 2000, 12 Operable Unit 2 (OU-2) deep soil vapor wells (Wells #25 through #28 and Wells #32 through #39) were sampled. Eighty-five depth-specific vapor samples plus 15 collocated field duplicates, a total of 100 samples, were successfully collected. However, at 26 locations, despite repeated efforts to clear the sampling line, no vapor sample could be obtained because of plugged tips on the installed sample probes. Location VPSV-982 (100' depth) had to be re-sampled three times at because of power surges that affected the GC system. Therefore, field conditions were not the same as at the other sampling locations where vapor samples were analyzed immediately after the first purge. How this might have affected results obtained at VPSV-982 is unknown, but is expected to bias the data low, if at all.

Once collected, each of the 100 samples of soil vapor (VPSV-918 through VPSV-1017) was immediately analyzed for a predetermined list of 25 target VOCs plus three surrogates. The time between sample collection and analysis was only a few minutes. In addition, at the beginning of each work day, a method/equipment blank was prepared by collecting ambient lab air through the field sampling apparatus. This method blank was run immediately prior to analyzing the environmental samples.

Listed in Table 3-1 are the laboratory results for all samples analyzed during this quarterly round of long-term soil vapor monitoring. Also included in this table are the corresponding soil vapor well numbers and depths from which each identified vapor sample was collected. This table should provide the reader with sufficient information to determine exactly where each sample was obtained, and also identify the collocated field duplicate samples (labeled DUP).

II. GUIDELINES USED FOR THIS REVIEW

Soil vapor data review was performed to assess and evaluate adherence to the <u>QA/QC</u> and <u>Reporting Requirements for Soil Gas Investigation</u>, protocols established by the California Regional Water Quality Control Board - Los Angeles Region, and general quality control requirements and good laboratory practices contained in the current reference methods for this analysis (8000B & 8021) published in <u>Test Methods for Evaluating Solid Wastes-Physical/Chemical Methods</u>, SW-846, Office of Solid Waste and Emergency Response, USEPA, Washington, DC, 3rd Edition, September 1986 (including Update IIB, January 1995).

There are some constraints imposed by the nature of any vapor matrix that limit the types of control samples that can be run. Where discrepancies were noted, the potential impact on data reliability is discussed later in the report. As had been requested, data tables that summarized the laboratory's external calibration and internal control sample results were included in this package. In addition, the package contained copies of individual chromatograms.

III. CHROMATOGRAPHIC PERFORMANCE

All sample analyses were performed using an external, three-point standard calibration method. For most analytes, both Shimadzu gas chromatograph detectors (Hall & PID) were calibrated over a range equivalent to 2 to 150 μ g/L-vapor. Analytical system performance was verified at the beginning of each analytical day with an "opening standard", and checked again at the end of the day with a "closing standard". Usually, a "calibration verification standard", was analyzed after approximately the tenth environmental sample run that day. Both closing and calibration verification standards were prepared from a different batch or chemical lot number than the parent standard used to make up the daily opening standard. All check standards were made up to the mid-point calibration concentration (equivalent to 20 μ g/L-vapor for most analytes). During seven days of testing, the calibration of HP Lab's Shimadzu analytical system was not altered, updated or otherwise adjusted.

The initial three-point calibration summary for this data package provides the average analyte-specific calibration factors used to quantify subsequent peak area responses from the field samples. System precision was evaluated in terms of the percent relative standard deviation (%RSD) among calibration factors calculated for each of the three standard concentrations for a particular analyte. Calibration precision was satisfactory (<20 %RSD), except for chloromethane, whose %RSD was 28.7 percent, and dichlorodifluoromethane (Freon-12), whose %RSD was 27.1 percent. However, in the case of Freon-12, the RWQCB guidance for initial calibration allows a maximum %RSD of 30 percent for this compound. Because a chloromethane QC limit is not specified, and chloromethane is a similar gaseous compound to Freon-12, a 30-%RSD precision limit is also applied to the initial chloromethane calibration data. Using these RWQCB guidelines, no calibration discrepancies were noted, and no data warranted qualification.

During each analytical day, the environmental sample analyses were bracketed by check standards which verified system performance for the analytes listed in the QA/QC - Calibration Data Summary Tables. Calibration factors (CF) calculated from opening standard results were always within ± 15 percent of the mean calibration factors calculated from initial calibration results. Closing standards, calibration verification standards, and laboratory control sample (LCS) results were always within ± 20 percent of initial calibration results except for:

1,2-Dichloroethane, whose %RSD was 34.7 percent on the continuing standard for January 17 m&p-Xylenes, whose %RSD was 26.5 percent on the continuing standard for January 19 m&p-Xylenes, whose %RSD was 32.9 percent on the continuing standard for January 20

Applying the RWQCB guidelines, all positive 1,2-dichloroethane results generated on January 17, and all positive m&p-xylenes results generated on January 19-20 should be qualified (J^{+}) because of excessive instrumental drift as evaluated from calibration verification data. In this case, however, because of the positive bias, non-detects would not be qualified. Therefore, since neither xylenes nor 1,2-dichloroethane was actually detected in any field samples, none of these data required qualification. However, the laboratory should have recognized these early continuing calibration problems and taken appropriate corrective action.

Method/equipment blanks were analyzed immediately after the opening verification standard and were clean in all cases.

Instrument response (in terms of area counts) to the environmental soil vapor samples always fell within the working calibration range of the GC.

In qualitative chromatographic terms such as peak shape, compound separation, stability of instrumental response, baseline appearance, drift and sensitivity, the quality of the chromatograms in these data packages compared favorably with the general criteria for single laboratory performance as published in the method references.

IV. REQUIRED INSTRUMENT QC

Based on general assessment criteria for GC analysis with non-MS detectors, RWQCB guidelines, and requirements in SW-846-Method 8021, laboratory data packages were evaluated as follows:

- Linearity of initial calibration curve: For each target analyte, the %RSD among response factors calculated from the three calibration standards was less than 20%, indicative of a linear relationship. In addition, based on the 3-point initial calibration data summary table provided by HP labs, linear correlation coefficients were greater than 0.995 for all target analytes.
- Retention time (RT) windows: Calculation of RT windows is not addressed under RWQCB guidelines. Retention time windows appeared stable and consistent. How acceptable ranges for RT windows were established, and the magnitude of temporal variation allowed was not explained in the data package.

• Establishment and verification of calibration factors: Based on initial calibration data, CF values were correctly calculated. Data from calibration verification standards indicated a stable analytical system.

V. MATRIX SPIKE AND LABORATORY CONTROL SAMPLES

The mixed-gas matrix collected from vapor monitoring wells was assumed not significantly to affect method performance in terms of detection limits, precision and accuracy. No matrix spike data were reported to verify this assumption and no lab replicates were run for internal lab precision assessment. However, data on 15 pairs of field duplicates were generated, and although the variability introduced in the process of sample extraction and collection is typically estimated to be an order of magnitude or more greater than analytical and reporting variability within the laboratory, some general conclusions about the variability of the data set as a whole can be drawn. For that purpose, the mean relative percent difference (RPD) between individual field duplicate data pairs with detectable concentrations of the four most commonly detected target analytes, along with other statistical parameters, are summarized in the table below using data expressed as $\mu g/L$ -vapor:

	STATISTICAL PARAMETERS - Field Duplicates							
	Average RPD ^a	Standard deviation (σ)	Variance (σ^2)	Relative Error σ÷RD ^b				
Carbon tetrachloride	8.2 %	5.9 x 10 ⁻²	3.5×10^{-3}	0.72				
1,1-Dichloroethene	6.3 %	6.5 x 10 ⁻²	4.2×10^{-3}	1.03				
Freon 113	5.0 %	5.7×10^{-2}	3.2×10^{-3}	1.14				
Trichloroethene	14.6 %	1.3 x 10 ⁻¹	1.6 x 10 ⁻²	0.87				

 $a_{RPD} = \frac{|(Duplicatel - Duplicate2)| \times 100}{(Duplicatel + Duplicate2) \div 2}$

Average RPDs and other statistical parameters compare favorably with the statistical data calculated from previous soil vapor analyses as reported by HP Labs. With average RPDs consistently below 15 percent, there is good general agreement between duplicate pairs and good consistency between sampling events. This suggests that a reproducibly consistent field sampling procedure is being properly implemented. With 72 to 114 percent relative error, variability within the duplicate data set is not considered excessive for this type of field sampling. It is suspected that this variability is probably not introduced by the laboratory's analytical system, but by the field collection technique which varies the amount of vapor purged from a well as a function of sampling depth, and by interactions between the inside surfaces of the sampling apparatus, entrained moisture, and target analytes present in the vapor phase.

^b RD = Relative Difference (RD = RPD/100); σ and σ^2 are calculated using RD.

VI. SURROGATE RECOVERIES

An essential requirement of the GC method is that each laboratory calculate in-house performance criteria for evaluating recovery of surrogate compounds by their particular analytical system. In this case, 1,4-difluorobenzene, chlorobenzene, and 4-bromofluorobenzene were employed as surrogates. However, the laboratory did not present any historical performance data with which to establish acceptable in-house surrogate recovery limits. Upper and lower warning and control limit calculations should be completed and included in future data packages. Lacking such data, a range of 75 to 125 percent was applied in accordance with RWQCB guidance. This has been the standard by which previous soil data packages were judged. The current data package satisfied this criterion. Indeed, surrogate recoveries typically fell within a recovery range of 86 to 110 percent.

VII. PERFORMANCE CRITERIA

The detection limit was reported at 1 μ g/L vapor for all 25 target compounds. Data to support and confirm this limit was not provided.

VIII. SUMMARY OF FINDINGS AND RECOMMENDATIONS

- A. The following general comments are offered relative to these data packages:
 - 1. The lab should establish and monitor trends in their own specific control limits for surrogate recoveries. This is a recurring request that has not been addressed by the laboratory.
 - 2. At Foster Wheeler's request, the laboratory had added carbon tetrachloride, but has dropped chloroform from their standard mix for preparing calibration verification and QC check standards. In addition, minor concentrations of trichlorofluoromethane (Freon-11) has been detected at several monitoring points. The analyte mix should include all compounds commonly detected in the vapor samples extracted from this site, including chloroform and Freon-11.
 - 3. In general, there was excellent qualitative agreement in the patterns of groups of compounds (or absence thereof) between field duplicate pairs. When one sample was clean, the other showed no detectable contamination. When target contaminants were detected, identical patterns of compounds were seen in both samples. Strong agreement between patterns indicates a high degree of precision in the identification of specific target analytes by the laboratory and also demonstrates that field sampling procedures, equipment design and materials of construction are not introducing significant bias.
- B. The following data qualifications should be made when reporting these results:

No data required qualification as a result of this review.

TABLE 1

(Concentrations in µg/L-vapor)

Soil Vapor Well	Depth		Sample							
Number	(ft bgs)	Date	Number	CCI ₄	Freon 113	TCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
25	20	10/4/99	VPSV-749	ND	ND	ND	ND	ND	ND	ND
25	40	10/4/99	VPSV-750	ND	ND	ND	ND	ND	ND	ND
25	60	10/4/99	NS	Р	P	Р	P	Р	Р	Р
25	85	10/4/99	NS	Р	P	Р	Р	Р	Р	Р
25	100	10/4/99	VPSV-751	ND	ND	ND	ND	ND	ND	ND
25	120	10/4/99	VPSV-752	ND	ND	ND	ND	ND	ND	ND
25	145	10/4/99	VPSV-753	ND	ND	ND	ND	ND	ND	ND
25	145	10/4/99	VPSV-754(DUP)	ND	ND	ND	ND	ND	ND	ND
25	165	10/4/99	NS	Р	P	Р	Р	Р	Р	Р
25	180	10/4/99	VPSV-755	ND	2.2	ND	ND	ND	ND	ND
25	190	10/4/99	VPSV-756	ND	ND	ND	ND	ND	ND	ND
26	20	10/4/99	NS	Р	Р	Р	Р	Р	Р	Р
26	35	10/4/99	VPSV-757	10	ND	1.5	ND	ND	ND	ND
26	55	10/4/99	NS	Р	P	P	Р	P	Р	Р
26	80	10/4/99	NS	Р	P	P	P	Р	Р	Р
26	100	10/4/99	NS	Р	P	Р	P	P	Р	Р
26	115	10/4/99	VPSV-758	1.7	ND	ND	ND	ND	ND	ND
26	140	10/4/99	VPSV-759	5.4	ND	1.9	ND	ND	ND	ND
26	140	10/4/99	VPSV-760(DUP)	8.1	ND	1.7	ND	ND	ND	ND
26	160	10/5/99	VPSV-761	5.0	2.2	1.8	ND	ND	ND	ND
26	180	10/5/99	VPSV-762	2.9	3.0	6.5	ND	ND	ND	ND
26	195	10/5/99	NS	Р	P	Р	Р	Р	Р	Р
27	20	10/5/99	VPSV-763	ND	ND	ND	ND	ND	ND	ND
27	35	10/5/99	NS	W	l w	W	W	l w	W	W
27	60	10/5/99	VPSV-764	ND	2.5	ND	ND	ND	ND	ND
27	85	10/5/99	VPSV-765	ND	ND	ND	ND	ND	ND	ND
27	85	10/5/99	VPSV-766(DUP)	ND	ND	ND	ND	ND	ND	ND
27	100	10/5/99	VPSV-767	5.2	ND	ND	ND	ND	ND	ND
27	120	10/5/99	VPSV-768	1.3	ND	ND	ND	ND	ND	ND

TABLE 1

(Concentrations in $\mu g/L$ -vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
27	140	10/5/99	VPSV-769	6.2	1.2	ND	ND	ND	ND	ND
27	160	10/5/99	VPSV-770	ND	ND	ND	ND	ND	ND	ND
27	180	10/5/99	VPSV-771	12	2.1	4.0	ND	ND	ND	ND
27	180	10/5/99	VPSV-772(DUP)	12	1.9	4.5	ND	ND	ND	ND
27	205	10/5/99	VPSV-773	4.8	2.2	ND	ND	ND	ND	ND
28	20	10/6/99	VPSV-783	ND	ND	ND	ND	ND	ND	ND
28	20	10/6/99	VPSV-784(DUP)	ND	ND	ND	ND	ND	ND	ND
28	45	10/6/99	NS `	Р	P	Р	Р	P	Р	Р
28	65	10/6/99	NS	Р	P	Р	Р	Р	Р	Р
28	80	10/6/99	VPSV-785	ND	ND	ND	ND	ND	ND	ND
28	105	10/6/99	VPSV-786	ND	ND	ND	ND	ND	ND	ND
28	120	10/6/99	NS	Р	Р	Р	Р	P	Р	P
28	140	10/6/99	NS	Р	Р	P	Р	P	Р	P
28	160	10/6/99	NS	Р	Р	Р	Р	Р	Р	Р
32	25	10/9/99	VPSV-812	ND	ND	ND	ND	ND	ND	ND
32	40	10/9/99	VPSV-813	ND	ND	ND	ND	ND	ND -	ND
32	40	10/9/99	VPSV-814(DUP)	ND	ND	ND	ND	ND	ND	ND
32	55	10/9/99	VPSV-815	ND	ND	ND	ND	ND	ND	ND
32	70	10/9/99	VPSV-816	ND	3.9	ND	ND	ND	ND	ND
32	90	10/9/99	VPSV-817	ND	ND	ND	ND	ND	ND	ND
32	115	10/9/99	NS	Р	P	Р	Р	P	Р	P
32	135	10/9/99	NS	P	Р	Р	P	P	Р	Р
32	155	10/9/99	VPSV-818	28	78	ND	ND	ND	ND	ND
32	180	10/9/99	VPSV-819	1.6	ND	ND	ND	ND	ND	ND
32	180	10/9/99	VPSV-820(DUP)	1.7	ND	ND	ND	ND	ND	ND
32	195	10/9/99	VPSV-821	ND	ND	ND	ND	1.5	ND	ND
33	20	10/6/99	VPSV-774	ND	2.3	ND	ND	ND	ND	ND
33	40	10/6/99	VPSV-775	3.7	67	8.9	47	ND	ND	ND
33	60	10/6/99	VPSV-776	6.6	2.4	1.7	4.8	ND	ND	ND

TABLE 1

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
33	85	10/6/99	VPSV-777	19	4.5	ND	3.3	ND	. ND	ND
33	85	10/6/99	VPSV-778(DUP)	22	4.7	ND	3.3	ND	ND	ND
33	105	10/6/99	VPSV-779	38	13	ND	4.4	ND	ND	ND
33	120	10/6/99	VPSV-780	64	17	1.1	4.1	ND	ND	ND
33	140	10/6/99	VPSV-781	8.6	3.3	ND	ND	2.9	ND	ND
33	160	10/6/99	NS	Р	P	Р	P	P	P	Р
33	180	10/6/99	NS	Р	P	Р	Р	P	Р	Р
33	200	10/6/99	VPSV-782	ND	ND	ND	ND	ND	ND	ND
34	20	10/7/99	VPSV-799	ND	ND	ND	ND	ND	ND	ND
34	35	10/7/99	VPSV-800	ND	ND	ND	ND	ND	ND	ND
34	50	10/5/99	NS	W	W	W	W	w	W	W
34	65	10/8/99	VPSV-801	ND	ND	ND	ND	ND	ND	ND
34	65	10/8/99	VPSV-802(DUP)	ND	ND	ND	ND	ND	ND	ND
34	80	10/8/99	VPSV-803	ND	ND	ND	ND	ND	ND	ND
34	95	10/8/99	VPSV-804	ND	ND	ND	ND	ND	ND	ND
34	108	10/8/99	VPSV-805	8.2	ND	ND	ND	ND	ND	ND
34	118	10/8/99	VPSV-806	52	2.5	ND	1.3	5.1	ND	ND
35	20	10/7/99	VPSV-787	ND	ND	ND	ND	ND	ND	ND
35	35	10/7/99	VPSV-788	ND	ND	ND	ND	ND	ND	ND
35	50	10/7/99	VPSV-789	ND	ND	ND	ND	ND	ND	ND
35	50	10/7/99	VPSV-791(DUP)	ND	ND	ND	ND	ND	ND	ND
35	60	10/7/99	VPSV-790	ND	ND	ND	ND	ND	ND	ND
35	80	10/7/99	VPSV-792	ND	ND	ND	ND	ND	ND	ND
35	95	10/7/99	VPSV-793	1.6	ND	ND	ND	ND	ND	ND
35	110	10/7/99	VPSV-794	ND	ND	ND	ND	ND	ND	ND
35	125	10/7/99	VPSV-795	ND	1.5	ND	ND	ND	ND	ND
35	125	10/7/99	VPSV-796(DUP)	ND	1.5	ND	ND	ND	ND	ND
35	140	10/7/99	VPSV-797	13	19	3.6	ND	ND	ND	ND
35	155	10/7/99	VPSV-798	13	17	9.0	ND	ND	ND	ND

TABLE 1

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
36	20	10/8/99	NS	P	Р	Р	P	P	P	Р
36	35	10/8/99	VPSV-807	48	ND	27	2.0	2.6	33	ND
36	35	10/8/99	VPSV-808(DUP)	49	ND ND	20	2.2	2.2	32	ND
36	55	10/8/99	VPSV-809	153	1.3	61	9.2	1.1	98	ND
36	75	10/8/99	VPSV-810	30	3.9	2.2	2.3	12	7.6	1.2
36	92	10/8/99	VPSV-811	20	5.8	1.4	2.6	15	1.3	ND
37	25	10/9/99	VPSV-822	ND	ND	ND	ND	ND	ND	ND
37	40	10/9/99	VPSV-823	2.1	ND	ND ND	ND	ND ND	ND	ND
37 37	60	10/9/99	VPSV-824	ND	ND ND	ND	ND	ND	ND ND	ND
37 37	80	10/9/99	VPSV-825	1.6	ND ND	ND ND	ND ND	ND	ND	ND
37 37	80 80	10/9/99	VPSV-826(DUP)	1.0	ND ND	ND ND	ND ND	ND ND	ND	ND ND
37 37	1		VPSV-827	1.9	1	3.1	ND	1.6	ND ND	ND
	100	10/9/99	VPSV-828	12 19	1.8 12	4.0	2.6	3.6		1.6
37 37	120	10/9/99 10/10/99	VPSV-829	3.0	1.8	ND	1.7	ND	ND ND	ND
	140	3					,	ND ND	1	L
37	155	10/10/99	VPSV-830	6.0	1.5	1.6	ND 1.9	1	ND	ND
37	170	10/10/99	VPSV-831	6.5	2.0	2.3	1	ND	ND	1.1
37	170	10/10/99	VPSV-832(DUP)	6.4	2.1	1.9	2.4	ND	ND	1.1
37	185	10/10/99	VPSV-833	7.4	2.8	4.4	1.8	ND	ND	ND
38	25	10/10/99	VPSV-834	ND	ND	ND	ND	ND	ND	ND
38	45	10/10/99	VPSV-835	ND	ND	ND	ND	ND	ND	ND
38	65	10/10/99	VPSV-836	ND	ND	ND	ND	ND	ND	ND
38	80	10/10/99	VPSV-837	ND	ND	ND	ND	ND	ND	ND
38	80	10/10/99	VPSV-838(DUP)	ND	ND	ND	ND	ND	ND	ND
38	95	10/10/99	NS	W	W	l w	W	W	W	W
38	110	10/10/99	VPSV-839	9.3	5.8	1.7	ND	1.7	ND	1.2
38	125	10/10/99	VPSV-840	3.2	3.6	ND	ND	ND	ND	ND
38	140	10/10/99	VPSV-841	6.6	3.4	NĐ	ND	1.9	ND	1.6
38	155	10/10/99	VPSV-842	6.7	3.6	1.2	1.8	1.1	ND	1.6

TABLE 1

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
38	170	10/10/99	VPSV-843	8.1	4.9	3.9	1.4	ND	ND	1.1
38	170	10/10/99	VPSV-844(DUP)	5.6	3.5	2.9	1.3	ND	ND	1.1
39	20	10/11/99	VPSV-845	ND	ND	ND	ND	ND	ND	ND
39	35	10/11/99	VPSV-846	ND	ND	ND	ND	ND	ND	ND
39	50	10/11/99	VPSV-847	ND	ND	ND	ND	ND	ND	ND
39	70	10/11/99	VPSV-848	ND	ND	ND	ND	ND	ND	ND
39	85	10/11/99	VPSV-849	6.3	48	1.4	ND	ND	ND	ND
39	85	10/11/99	VPSV-850(DUP)	7.7	47	2.5	ND	ND	ND	ND
39	100	10/11/99	VPSV-851	9.0	46	3.3	ND .	ND	ND	ND
39	110	10/11/99	VPSV-852	12	55	3.2	ND	ND	ND	ND
39	120	10/11/99	VPSV-853	4.9	16	17	ND	ND	ND	ND
39	130	10/11/99	VPSV-854	2.0	9.0	15	ND	ND	ND	ND

Notes:

bgs - Below ground surface.

DUP - Duplicate samples.

ft - feet.

ND - Not detected.

NS - Not sampled.

P - Sampling port plugged.

W - Sampling port inundated with water.

APPENDIX B

- **B-1** RESULTS OF SOIL-VAPOR ANALYSES
- **B-2 CHAIN-OF-CUSTODY FORMS**
- **B-3** INITIAL THREE-POINT CALIBRATION DATA
- B-4 DAILY OPENING, CLOSING, AND CONTINUING CALIBRATION VERIFICATION REPORTS

APPENDIX B-1 RESULTS OF SOIL-VAPOR ANALYSES

HP Laus

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0117W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	BLANK	BLANK	VPSV918-20	VPSV918-20	VPSV919-40	VPSV919-40	VPSV920-145	VPSV920-145	VPSV921-180	VPSV921-180
DATE	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00
SAMPLING TIME	7:12	7:12	8:57	8:57	9:21	9:21	10.04	10:04	10 33	10:33
ANALYSIS TIME	7:12	7:12	8:59	8:59	9:23	9:23	10:06	10:06	10:35	10:35
SAMPLING DEPTH (feet)	-		20	20	40	40	145	145	180	180
VOLUME WITHDRAWN (cc)	200	200	80	80	160	160	580	580	720	720
VOLUME INJECTED	1	1	1	1	1	1	1	1	1	
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	10.3	177	10.4	178
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd ¹	nd	nd	nd	
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	r nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	· nd	nd	nd	nd	nd	nď	· nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd		nd - t
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd 	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd - d	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd		nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd nd	nd 5.6	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd			134
ETHYLBENZENE	nd	nd	nd	nd	nd	nd		nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd 	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd - d	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURRUGATES				110	110	110	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	10.9	224	10.9	252	10.9	236	10.9	229	10.9	050
CHLOROBENZENE	17.8	555	17.8	567	17.8	543	17.8			250
4 BROMOFLUORO BENZENE	21.0	812	21.0	917	21.1	846	21.1	514 824	17.8	574
ND INDICATES NOT DETECTED AT A DETECTION	LIMIT OF 1.0 UG/L	-VAPOR FOR	EACH COMPO	UND			21.1	024	21.1	901

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0117W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN PPMV

DATE	· · · · · · · · · · · · · · · · · · ·	BLANK	VPSV918-20	VPSV919-40	VPSV920-145	VPSV921-180	VPSV922-190
		01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00
SAMPLING TIME		07:12	08:57	09:21	10:04	10:33	10.59
ANALYSIS TIME		07:12	08:59	09:23	10:06	10:35	11.0
SAMPLING DEPTH (feet)			20	40	145	180	190
VOLUME WITHDRAWN (cc)		200	80	160	580	720	760
VOLUME INJECTED	DETECTION	1	1	1	1	1	760
DILUTION FACTOR	LIMITS	1	1	1	1	i	1
	(ppmv)						
CARBON TETRACHLORIDE	0.156	nd	nd	nd	0.2	0.2	0.2
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd	
CHLOROFORM	0.202	nd	nd	nd	nd		no
1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd 	no
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	no
1,1-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	· no
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd		nd	nd
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	0.282	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	0.145	nd	nd		nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	· nd	nd 	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	. nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd	nd	nd 	nd	nd	nd
TRICHLORO ETHENE	0.182	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	0.381	nd		nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198		nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	0.128	nd nd	nd	nd	nd	nd	nd
BENZENE	0.308		nd	nd	nd	0.2	nd
ETHYLBENZENE	0.226	nd	nd	nd	nd	nď	nd
TOLUENE	0.261	nd	nd	nd	nd	nd	nd
m&p-XYLENES		nd	nd	nd	nd	nd	nd
o-XYLENE	0.226 0.226	nd	nd	nd	nd	nd	nd
CHLOROMETHANE		nd	nd	nd	nd	nd	nd
SURROGATES	0.481	nd	nd	nd	nd	nd	nd
1.4 DIFLUORO BENZENE		97%	4400/				
CHLOROBENZENE			110%	103%	100%	109%	104%
4 BROMOFLUORO BENZENE		106% 95%	109%	104%	98%	110%	106%
ND INDICATES NOT DETECTED AT LISTED DETE		95%	107%	99%	96%	106%	101%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0117W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	BLANK	VPSV918-20	VPSV919-40	VPSV920-145	VPSV921-180	VPSV922-190
DATE	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00
SAMPLING TIME	07:12	08:57	09:21	10:04	10:33	10.59
ANALYSIS TIME	07:12	08:59	09:23	10:06	10:35	11:01
SAMPLING DEPTH (feet)		20	40	145	180	190
VOLUME WITHDRAWN (cc)	200	80	160	580	720	760
VOLUME INJECTED	1	1	1	1	1	1
DILUTION FACTOR	, 1	1	1	1	1	
CARBON TETRACHLORIDE	nd	nd	nd	1.0	1.0	12
CHLOROETHANE/BROMOMETHANE	nd	nd	· nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nđ	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	1.5	nd nd
BENZENE	nd	nd	nd	nd	nd	
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd nd
SURROGATES					nd nd	HQ
1,4 DIFLUORO BENZENE	97%	110%	103%	100%	109%	104%
CHLOROBENZENE	106%	109%	104%	98%	110%	104%
4 BROMOFLUORO BENZENE	95%	107%	99%	96%	106%	101%
ND INDICATES NOT DETECTED AT A DETECTION LIN	MIT OF 1.0 UG/L-VAPOR FO	R EACH COMPOUND			10078	10176

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER

HP Laus

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0117W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV922-190	VPSV922-190 VP	SV923-190 DUP VP:	SV923-190 DUP	VPSV924-35	VPSV924-35	VPSV925-115	VPSV925-115
DATE	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00
SAMPLING TIME	10:59	10:59	11:25	11:25	11:51	11:51	12.19	
ANALYSIS TIME	11:01	11:01	11:27	11:27	11:55	11:55	12:19	12:19
SAMPLING DEPTH (feet)	190	190	190	190	35	35	12.23	12:23
VOLUME WITHDRAWN (cc)	760	760	760	760	140	140	460	115
VOLUME INJECTED	1	1	1	1	1	140	460	460
DILUTION FACTOR	1	1	1	1	1 .	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	10.3	204	10.3	189	nd	nd	10.3	
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd		1,203
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd		nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd		nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd		nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd 	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd d	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd		nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd - d	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd		nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd		nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd -	nd	nd	nd	nd	nd
ETHYLBENZENE	nd		nd	nd	nd	nd	nd	nd
TOLUENE	nd	bn 	nd	nd	nd	nd	nd	nd
m&p-XYLENES		nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd nd	nd 1	nd	nd	nd	nd	nd	nd
CHLOROMETHANE		nd	nd	nd	nd	nd	nd	nd
SURROGATES	nd	nd	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	10.9	239	40.0	200		· · · · · · · · · · · · · · · · · · ·		
CHLOROBENZENE	17.8	554	10.9	220	10.9	217	10.9	219
4 BROMOFLUORO BENZENE	21.0	554 866	17.8	504	17.8	492	17.8	505
ND INDICATES NOT DETECTED AT A DETECTION			21.1	795	21.1	787	21.1	799

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0117W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

0.470	VPSV926-140	VPSV926-140	VPSV927-160	VPSV927-160	VPSV928-180	VPSV928-180 VP	SV929-180 DUP \	/PSV929-180 DUP
DATE	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00
SAMPLING TIME	12:48	12:48	13:15	13:15	13:42	13:42	14:09	14:09
ANALYSIS TIME	12:52	12:52	13:18	13:18	13:44	13:44	14:11	14:11
SAMPLING DEPTH (feet)	140	140	160	160	180	180	180	180
VOLUME WITHDRAWN (cc)	560	560	640	640	720	720	720	720
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	10.4	1,982	10.4	1,971	10.4	945	10.4	857
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nď	nd	nd	nd
CHLOROFORM	9.1	440	9.2	385	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	6.0	10	6.0	12	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	· nd	nd	nd	nd nd	
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd - 1
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd		nd
1,1,2-TRICHLORO ETHANE	nď	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	11.7	26	11.7	27	11.7	87	nd 11.7	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd nd		85
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.9	109	5.8	261	5.8	312	nd	nd
BENZENE	nd	nd	nd	nd	nd 5.6		5.8	325
ETHYLBENZENE	nd	nd	nd	nd		nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd 	nd	nd	nd
m&p-XYLENES	nd	nd	nd		nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd nd	nd d	nd	nd	nd
CHLOROMETHANE	nd	nd	nd		nd	nd	nd	nd
SURROGATES	7,0	110	nu	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	11.0	220	10.9	236	10.9	242	40.5	
CHLOROBENZENE	17.9	502	17.9	544	17.9	242 560	10.9	235
4 BROMOFLUORO BENZENE	21,1	790	21.1	849	21.1	873	17.9	540
ND INDICATES NOT DETECTED AT A DETECTION				043	۷۱.۱	0/3	21.1	852

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: ALLEN GLOVER

DATA REVIEWED BY JAMES E PICKER

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0117W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN PPMV

D. C.		VPSV923-190 DUP	VPSV924-35	VPSV925-115	VPSV926-140	VPSV927-160	VPSV928-180	VPSV929-180 DUI
DATE		01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00
SAMPLING TIME		11:25	11:51	12:19	12:48	13:15	13:42	14.09
ANALYSIS TIME		11:27	11:55	12:23	12:52	13:18	13:44	14.11
SAMPLING DEPTH (feet)		190	35	115	140	160	180	180
VOLUME WITHDRAWN (cc)		760	140	460	560	640	720	720
VOLUME INJECTED	DETECTION	1	1	1	1	1	1	120
DILUTION FACTOR	LIMITS	1	1	1	1	1	1	,
	(ppmv)							
CARBON TETRACHLORIDE	0.156	0.2	nd	1.1	1.8	1.8	0.8	0.8
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd	nd	no no
CHLOROFORM	0.202	nd	nd	nd	0.3	0.3	nd	
. 1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	no
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	no
1,1-DICHLORO ETHENE	0.247	nd	nd	nd	0.3	0.3	nd	no
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd .	nd	nd	nd	no
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	0.282	nd	nd	nd ·	nd	nd		nd
TETRACHLORO ETHENE	0.145	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd -	nd	nd		nd 4	nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd	nd		nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	0.182	nd	nd	nd	0.3	nd	· nd	nd
VINYL CHLORIDE	0.381	nd	nd	nd		0.3	1.0	1.0
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	0.128	nd	nd	nd	nd 0.2	nd	nd	nd
BENZENE	0.308	nd	nd	nd	nd	0.4	0.4	0.5
ETHYLBENZENE	0.226	nd	nd	nd		nd	nd	nd
TOLUENE	0.261	nd	nd	nd	nd 	nd	nd	nd
m&p-XYLENES	0.226	nd	nd		nd 	nd	nd	nd
o-XYLENE	0.226	nd	nd	nd nd	nd	nd	nd	nd
CHLOROMETHANE	0.481	nd	nd	nd	nd	nd	nd	nd
SURROGATES			nu -	IIU	nd	nd	nd	nd
1.4 DIFLUORO BENZENE		96%	94%	95%	96%	1000	105	
CHLOROBENZENE		97%	94%	95% 97%		103%	105%	102%
4 BROMOFLUORO BENZENE		93%	92%	94%	96% 93%	104%	107%	103%
ND INDICATES NOT DETECTED AT LISTED DET	CTION LIMITS C		JZ /0	54 7o	93%	99%	102%	100%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER

DATA DEVIEWED BY: JAMES E DICKER

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0117W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR

SOIL	VAPOR	DATA	IN UG/L	-VAPOR
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DATE	VPSV923-190 DUP	VP\$V924-35	VPSV925-115	VPSV926-140	VPSV927-160	VPSV928-180	VPSV929-180 DUI
DATE	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00	01/17/00
SAMPLING TIME	11:25	11:51	12:19	12:48	13:15	13:42	14:09
ANALYSIS TIME	11:27	11:55	12:23	12:52	13:18	13:44	14:1:
SAMPLING DEPTH (feet)	190	35	115	140	160	180	180
VOLUME WITHDRAWN (cc)	760	140	460	560	640	720	720
VOLUME INJECTED DILUTION FACTOR	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	1,1	nd	6.9	11			
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	11	5.4	4.9
CHLOROFORM	nd	nd	nd	1.5	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	1.3	nd	nd
1,2-DICHLORO ETHANE	. nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	1.1	nd 4.2	nd	nd
CIS-1,2-DICHLORO ETHENE	nd .	nd	nd	nd	1.3	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd t	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd 1	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd 	nd	nd
TRICHLORO ETHENE	nd	nd	nd	1.7	nd 4.0	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	1.8	5.7	5.5
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd 4	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	1.2	nd 2.9	nd 2.5	nd
BENZENE	nd	nd	nd	nd		3.5	3.6
ETHYLBENZENE	nd	nd	nd	nd	nd - 4	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd		nd	nd	nd
o-XYLENE	nd	nd	nd	nd nd	nd nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
SURROGATES			no no	TIU	IIQ.	nd	nd
1,4 DIFLUORO BENZENE	96%	94%	95%	96%	1020/	10.50	
CHLOROBENZENE	97%	94%	97%	96% 96%	103%	105%	102%
4 BROMOFLUORO BENZENE	93%	92%	94%	93%	104% 99%	107%	103%
ND INDICATES NOT DETECTED AT A DETECTION	LIMIT OF 1.0 UG/L-VAPOR	FOR EACH COMPOU	ND 37%	33.76	9976	102%	100%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0118W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR AREA COUNTS

DATE	BLANK	BLANK	VPSV930-20	VPSV930-20	VPSV931-35	VPSV931-35	VPSV932-60	VPSV932-60
	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00
SAMPLING TIME	4:42	4:42	7:48	7:48	8:10	8.10	8:34	8:34
ANALYSIS TIME	4:42	4:42	7:49	7:49	8:13	8:13	8:37	8:37
SAMPLING DEPTH (feet)			20	20	35	35	60	60
VOLUME WITHDRAWN (cc)	200	200	80	80	140	140	240	240
VOLUME INJECTED	1	1	1	1	1	1	1	240
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	. nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd ·	· nd	nd	nd	nd	' nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd		nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd		nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd		nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd -	nd
1.1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd 5.7	nd
BENZENE	nd	nd	nd	nd	nd	nd		304
ETHYLBENZENE	nd	nd	nd	nd	nd		nd 	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd 4	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES				nu	- no	nd	nd	nd
1,4 DIFLUORO BENZENE	10.8	241	10.9	252	10.7	225	10.0	
CHLOROBENZENE	17.8	536	17.8	571	17.8	225 516	10.8	231
4 BROMOFLUORO BENZENE	21.0	875	21.0	915	21.0	821	17.8	538
ND INDICATES NOT DETECTED AT A DETECTION L	IMIT OF 1.0 UG/L-VAP	OR FOR EACH O	OMPOLIND		21.0	021	21.0	845

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0118W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN PPMV

		BLANK	VPSV930-20	VPSV931-35	VPSV932-60	VPSV933-85	VPSV934-100 VPS	V935-100 DHP	VPSV936-120
DATE		01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00
SAMPLING TIME		04:42	07:48	08:10	08:34	08:58	09 22	09:46	10 09
ANALYSIS TIME		04:42	07:49	08:13	08:37	09:01	09:25	09:49	10:13
SAMPLING DEPTH (feet)			20	35	60	85	100	100	
VOLUME WITHDRAWN (cc)		200	80	140	240	340	400	400	120
VOLUME INJECTED	DETECTION	1	1	1	1	1	1	400	480
DILUTION FACTOR	LIMITS	1	1	1	1	1	1	1	1
	(ppmv)					•			1
CARBON TETRACHLORIDE	0.156	nd	nd	nd	nd	0.5	2.0	2.4	
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd	nd		0.3
CHLOROFORM	0.202	nd	nd	nd	nd	nd	nd	nd nd	, nd
1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nď		nd	nd
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	· nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	0.282	nd	nd	nd	nd		nd	nd	nd
TETRACHLORO ETHENE	0.145	nd	nd	nd	nd	nd 	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nd		nd 	nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd	nd		nd - d	nd	nd	nd	nd
TRICHLORO ETHENE	0.182	nd	nd	nd	. nd	nd	nd	nd	nd
VINYL CHLORIDE	0.381	nd	nd	nd 	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd		nd - d	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198	nd	nd nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	0.128	nd	nd nd	nd	nd	nď	nd	nd	nd
BENZENE	0.308	nd		nd	0.4	0.3	0.2	0.2	nd
ETHYLBENZENE	0.226	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	0.261		nd - 1	nd	nd	nd	nd	nd	nd
m&p-XYLENES	0.226	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	0.226	nd	nd - d	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	0.481	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES	0.401	nd	nd	nd	nd	nd	nd	nd	nd
1.4 DIFLUORO BENZENE		40504							
CHLOROBENZENE CHLOROBENZENE		105%	110%	98%	100%	98%	97%	94%	102%
4 BROMOFLUORO BENZENE		103%	109%	99%	103%	102%	98%	95%	103%
ND INDICATES NOT DETECTED AT LISTED DET	COTION LINES FOR	102%	107%	96%	99%	97%	94%	92%	100%
THE INDICATES NOT DETECTED AT LISTED DET	ECHON LIMITS FOR	REACH COMPOU	מא						

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

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FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0118W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

DATE	BLANK	VPSV930-20	VPSV931-35	VPSV932-60	VPSV933-85	VPSV934-100 VI	PSV935-100 DUP	VPSV936-120
SAMPLING TIME	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00
ANALYSIS TIME	04:42	07:48	08:10	08:34	08:58	09:22	09:46	10.09
SAMPLING DEPTH (feet)	04:42	07:49	08:13	08:37	09:01	09:25	09:49	10:03
VOLUME WITHDRAWN (cc)		20	35	60	85	100	100	120
VOLUME INJECTED	200	80	140	240	340	400	400	480
DILUTION FACTOR	1	1	1	1	1	1	1	400
DIEGHON FACTOR	1	1	11	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	20			
CHLOROETHANE/BROMOMETHANE	nd	nd	nd		3.0	13	15	1.6
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd		nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE '	nd	nd .	nd	. nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	. nd
DICHLOROMETHANE	nd	nd	nd t	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nđ	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	. nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd		nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE		nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd 	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	3.4	2.6	1.4	1.7	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	na	nd	nd	nd	nd	nd	nd
D-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES	nd	nd	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	105%	110%	98%	40000				
CHLOROBENZENE	103%	109%	98%	100%	98%	97%	94%	102%
BROMOFLUORO BENZENE	102%	107%	069/	103%	102%	98%	95%	103%
ND INDICATES NOT DETECTED AT A DETECTION LIM	IT OF 10 HG/L VAP	OP FOR EACH COL	96%	99%	97%	94%	92%	100%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER

DATA REVIEWED BY JAMES E PICKER

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0118W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV933-85	VPSV933-85	VPSV934-100	VPSV934-100	PSV935-100 DUP	PSV935-100 DUP	VPSV936-120	VPSV936-120
DATE	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00
SAMPLING TIME	8:58	8:58	9:22	9:22	9:46	9:46	10:09	10 09
ANALYSIS TIME	9:01	9:01	9:25	9:25	9:49	9:49	10:13	10:13
SAMPLING DEPTH (feet)	85	85	100	100	100	100	120	120
VOLUME WITHDRAWN (cc)	340	340	400	400	400	400	480	480
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	10.2	515	10.2	2,267	10.3	2,647	10.3	285
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nď	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	· nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	. nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nđ	nd	. nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	. nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd.
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd:
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.7	238	6.0	129	6.0	156	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd.
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES		······································					110	110
1,4 DIFLUORO BENZENE	10.7	226	10.8	222	10.9	216	10.8	235
CHLOROBENZENE	17.8	532	17.8	512	17.8	495	17.8	537
4 BROMOFLUORO BENZENE	21.0	830	21.1	806	21.1	785	21.1	856
ND INDICATES NOT DETECTED AT A DETECTION	LIMIT OF 1.0 UG/L-V/	APOR FOR EACH	COMPOUND				_ · · · ·	030

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

HP Laus

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0118W1 GC SHIMADZU 14A FRONT VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Me

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR SOIL VAPOR DATA IN PPMV

		VPSV937-140	VPSV938-160	VPSV939-180	VPSV940-205 VI	PSV941-205 DUP	VPSV942-20	VPSV943-80	VPSV944-10
DATE		01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00
SAMPLING TIME		10:36	11.00	11:26	11:51	12:13	13:06	13:30	13 56
ANALYSIS TIME		10:37	11:04	11:28	11:53	12:19	13:10	13:34	13:58
SAMPLING DEPTH (feet)		140	160	180	205	205	20	80	105
VOLUME WITHDRAWN (cc)		560	640	720	820	820	80	320	. 420
VOLUME INJECTED	DETECTION	1	. 1	1	1	1	1	320	
DILUTION FACTOR	LIMITS	1	1	1	1	1	i .	1	
	(ppmv)						······································	· · · · · · · · · · · · · · · · · · ·	
CARBON TETRACHLORIDE	0.156	1.6	0.4	4.3	1.8	1.4	nd	nd	
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd	nd	nd	0,2
CHLOROFORM	0.202	nd	nd	nd	nd	nd	nd		no
I,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	nd 	no
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	nd	no
1,1-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd		nd	no
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	nd .	nd	·no
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd		nd	nd	no
DICHLOROMETHANE	0.282	nd	nd	nd	nd	nd	nd	nd	no
ETRACHLORO ETHENE	0.145	nd	nd	nd	nd	nd	nd	nd	nc
,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd 	nd	nd	no
,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nd		nd	nd	nd	no
,1,1-TRICHLORO ETHANE	0.180	nd	· nd	nd	nd	nd	nd	nd	nd
.1,2-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd	. nd	nd	nd
RICHLORO ETHENE	0.182	nd	nd	0.5	nd	nd	nd	nd	nd
INYL CHLORIDE	0.381	nd	nd		0.5	0.4	nd	nd	nd
RICHLOROFLUOROMETHANE (FR11)	0.183	nd	nd	nd	nd	nd	nd	nd	nd
OICHLORODIFLUOROMETHANE (FR12)	0.198	nd		nd - d	0.2	0.2	nd	nd	nd
.1,2-TRICHLOROTRIFLUOROETHANE (FR11		0.3	nd nd	nd 0.4	nd	nd	nd	nd	nd
ENZENE	0.308	nd			0.7	0.7	nd	nd	nd
THYLBENZENE	0.226	nd	nd	nd	nd	nd	nd	nd	nd
OLUENE	0.261	nd	nd	nd	nd	nd	nd	nd	nd
n&p-XYLENES	0.226		nd - 1	nd	nd	nd	nd	nd	nd
-XYLENE	0.226	nd nd	nd	nd	nd	nd	nd	nd	nd
HLOROMETHANE	0.481	nd	nd	nd	nd	nd :	nd	nd	nd
URROGATES	0.401	nu nu	nd	nd	nd	nd	nd	nd	nd
4 DIFLUORO BENZENE		89%	89%	0001	2001				
HLOROBENZENE		90%	91%	90%	93%	100%	89%	96%	94%
BROMOFLUORO BENZENE		90% 87%	91% 87%	91%	93%	100%	90%	97%	96%
D INDICATES NOT DETECTED AT LISTED D	ETECTION LIMITS E		IND	87%	91%	97%	88%	94%	93%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0118W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV941-205 DUP	PSV941-205 DUP	VPSV942-20	VPSV942-20	VPSV943-80	VPSV943-80	VPSV944-105	VPSV944-105
DATE	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00
SAMPLING TIME	12:13	12:13	13:06	13:06	13:30	13:30	13.56	13.56
ANALYSIS TIME	12:19	12:19	13:10	13:10	13:34	13:34	13:58	13:58
SAMPLING DEPTH (feet)	205	205	20	20	80	80	105	105
VOLUME WITHDRAWN (cc)	820	820	80	80	320	320	420	420
VOLUME INJECTED	1	1	1	1	1	1	1	420
DILUTION FACTOR	1	1	1	1	1	1	1	,
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	10.3	1,605	nd	nd	nd	nd	10.3	
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd		195
CHLOROFORM	nd	nđ	nd	nd	nd		nd .	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	. nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd nd	nd 	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	· nd		nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd		nd 	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd 	nd	nd	. nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd		nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	11.6	33	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	5.2	331	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd 5.2		nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.8	nd	nd	nd	nd	nd	nd	nd
BENZENE		481	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	. nd
o-XYLENE	nd	nd	nd	· nd	nd	nd	nd	nd
	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE SURROGATES	nd	nd	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE								i
CHLOROBENZENE	10.9	230	10.8	205	10.8	221	10.9	217
4 BROMOFLUORO BENZENE	17.8	524	17.8	469	17.8	507	17.8	499
	21.0	828	21.0	748	21.0	805	21.0	792
ND INDICATES NOT DETECTED AT A DETECTION	LIMIT OF 1.0 UG/L-	VAPOR FOR EACH C	OMPOUND				····	

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0118W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV937-140	VPSV937-140	VPSV938-160	VPSV938-160	VPSV939-180	VPSV939-180	VPSV940-205	VPSV940-205
DATE	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00
SAMPLING TIME	10:36	10:36	11:00	11:00	11:26	11:26	11 51	11:51
ANALYSIS TIME	10:37	10:37	11:04	11:04	11:28	11:28	11:53	11:53
SAMPLING DEPTH (feet)	140	140	160	160	180	180	205	205
VOLUME WITHDRAWN (cc)	560	560	640	640	720	720	820	820
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1		1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	10.3	1,786	10.4	438	10.3	4,741	10.3	1,971
CHLOROETHANE/BROMOMETHANE	nd							
CHLOROFORM	nd							
1,1-DICHLORO ETHANE	nd							
1,2-DICHLORO ETHANE	nd							
1,1-DICHLORO ETHENE	nd							
CIS-1,2-DICHLORO ETHENE	nd	· nd	nd	nd	nd	· nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd							
DICHLOROMETHANE	nd	nd	nđ	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd .	nd
1,1,1,2-TETRACHLORO ETHANE	nd							
1,1,2,2-TETRACHLORO ETHANE	nd	nd.						
1,1,1-TRICHLORO ETHANE	nd							
1,1,2-TRICHLORO ETHANE	nd	nd nd						
TRICHLORO ETHENE	nd	nd	nd	nd	11.6	39	11 6	44
VINYL CHLORIDE	nd							
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	5.2	nd 332
DICHLORODIFLUOROMETHANE (FR12)	nd	ooz nd						
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.7	192	nd	nd	5.8	250	5.8	487
BENZENE	nd							
ETHYLBENZENE	nd	nd	nd	nd	nd	ind	nd	
TOLUENE	nd	nd nd						
m&p-XYLENES	nd	nd d						
o-XYLENE	nd							
CHLOROMETHANE	nd	nd nd						
SURROGATES				779	110	110	nu .	na
1,4 DIFLUORO BENZENE	10.8	204	10.9	205	10.9	206	10 9	213
CHLOROBENZENE	17.8	469	17.8	473	17.8	475	17.8	486
4 BROMOFLUORO BENZENE	21.1	742	21.1	743	21.1	746	21.0	775
ND INDICATES NOT DETECTED AT A DETECTION						140	21.0	115

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0118W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	VPSV937-140	VPSV938-160	VPSV939-180	VPSV940-205 VF	SV941-205 DUP	VPSV942-20	VPSV943-80	VPSV944-105
DATE	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00	01/18/00
SAMPLING TIME	10:36	11:00	11:26	11:51	12:13	13:06	13:30	13:56
ANALYSIS TIME	10:37	11:04	11:28	11:53	12:19	13:10	13:34	13:58
SAMPLING DEPTH (feet)	140	160	180	205	205	20	80	105
VOLUME WITHDRAWN (cc)	560	640	720	820	820	80	320	420
VOLUME INJECTED	1	1	1	1	1	1	1	420
DILUTION FACTOR	1	1	1	1	1	1	i	1
CARBON TETRACHLORIDE	10	2.5	27	11	9.2			
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd - 1	nd	1.1
CHLOROFORM	nd	nd	nd	nd		nd	nd	nd
1.1-DICHLORO ETHANE	nd	nd	nd		nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1.1-DICHLORO ETHENE	nd	nd	nd	nd nd	nd	nd	nd '	nd
CIS-1,2-DICHLORO ETHENE	nd	· nd		nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd - d	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd		nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nđ
1,1,2-TRICHLORO ETHANE		nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd 4	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	2.6	2.9	2.2	nđ	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	, nd	nd	nd
	nd	nd	nd	1.2	1.2	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113) BENZENE	2.1	nd	2.8	5.4	5.3	nd	nd	nd
	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	กต่	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES								
1,4 DIFLUORO BENZENE	89%	89%	90%	93%	100%	89%	96%	94%
CHLOROBENZENE	90%	91%	91%	93%	100%	90%	97%	96%
4 BROMOFLUORO BENZENE ND INDICATES NOT DETECTED AT A DETECTION L	87%	87%	87%	91%	97%	88%	94%	93%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0119W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	BLANK	BLANK	VPSV945-20	VPSV945-20	VPSV946-40	VPSV946-40	VPSV947-40 DUP	VPSV947-40 DUP
DATE	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00
SAMPLING TIME	5:31	5:31	7:41	7:41	8:01	8 0 1	8 24	8:24
ANALYSIS TIME	5:31	5:31	7:42	7:42	8:06	8:06	8.30	8:30
SAMPLING DEPTH (feet)	**		. 20	20	40	40	40	40
VOLUME WITHDRAWN (cc)	200	200	80	80	160	160	160	160
VOLUME INJECTED	1	1	1	1 .	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	10.2	1,068	10.3	1.046
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	5.8	335	5.9	346
CIS-1,2-DICHLORO ETHENE	nd	· nđ	nd ·	nd	nd	· nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nď	nd	nd	nd	nd	nd	nd-	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	9.7	222	9.8	236
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	11.5	118	11.6	101
VINYL CHLORIDE	nd	nđ	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	- nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	5.8	381	5.6	7,777	5.7	8,292
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES			· · · · · · · · · · · · · · · · · · ·					7.0
1,4 DIFLUORO BENZENE	10.9	215	10.9	231	10.8	219	10.9	217
CHLOROBENZENE	17.8	481	17.8	521	17.8	511	17.8	507
4 BROMOFLUORO BENZENE	21.0	776	21.0	831	21.0	805	21.0	795
ND INDICATES NOT DETECTED AT A DETECTION	LIMIT OF 1.0 UG/L-VAF	OR FOR EACH	COMPOUND		77.4.76			

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0119W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV948-60	VPSV948-60	VPSV949-85	VPSV949-85	VPSV950-105	VPSV950-105	VPSV951-120	VPSV951-120
DATE	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00
SAMPLING TIME	8:48	8:48	9:15	9:15	9:39	9:39	10.03	10.03
ANALYSIS TIME	8:55	8:55	9:18	9:18	9:43	9:43	10:06	10:06
SAMPLING DEPTH (feet)	60	60	85	85	105	105	120	120
VOLUME WITHDRAWN (cc)	240	240	340	340	420	420	480	480
VOLUME INJECTED	1	1	1	1	1	1	1	400
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	10.3	2,413	10.2	5,761	10.3	11,984	10.2	17,560
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	
1,1-DICHLORO ETHENE	5.9	53	5.8	42	5.9	38	5.8	nd 58
CIS-1,2-DICHLORO ETHENE	· nd	nd	nd	nd	. nd	nd	o.o nd	
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd 4
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd		nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd		nd	nd
TRICHLORO ETHENE	11.6	32	nd	nd	nd	nd nd	nd 	nd
VINYL CHLORIDE	nd	nd	nď	nd	nd		nd 	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nď	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.8	375	5.7	633	5.7	nd 1,606	nd 5.7	nd
BENZENE	nd	nd	nd	nd	nd			1,551
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd 	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd nd	nd	nd
SURROGATES				114	TIQ	na	nd	nd
1,4 DIFLUORO BENZENE	10.9	249	10.8	225	10.9	220	10.8	204
CHLOROBENZENE	17.8	568	17.8	516	17.8	509	10.8	224
4 BROMOFLUORO BENZENE	21.1	903	21.1	816	21.1	799	21.1	519 818
ND INDICATES NOT DETECTED AT A DETECTION	LIMIT OF 1.0 UG/L-V/	APOR FOR EACH C				133	41.1	618

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0119W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR

SOIL VAPOR DATA IN UG/L-VAPOR

	BLANK	VPSV945-20	VPSV946-40	VPSV947-40 DUP	VPSV948-60	VPSV949-85	VPSV950-105	VPSV951-120
DATE	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00
SAMPLING TIME	05:31	07:41	08:01	08:24	08:48	09:15	09:39	10.03
ANALYSIS TIME	05:31	07:42	08:06	08:30	08:55	09:18	09:43	10:06
SAMPLING DEPTH (feet)		20	40	40	60	85	105	120
VOLUME WITHDRAWN (cc)	200	80	160	160	240	340	420	480
VOLUME INJECTED	1	1	1	1	1	1	1	1 1
DILUTION FACTOR	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	6.1	6.0	14	33		
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd		69	101
CHLOROFORM	nd	nd	nd	nd	nd	nd 	nd	nđ
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd - 1	nd	nd
1,1-DICHLORO ETHENE	nd	nd	38	39	5.9	nd 4.7	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	. nd		4.3	6.5
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd ·	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd		nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	1.0	1.1	nd	nd	nd	nd
1.1.2-TRICHLORO ETHANE	nd	nd	nd	***	nd 	nd	nd	nd
TRICHLORO ETHENE	nd	nd	7.7	nd 6,6	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd		2.1	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nđ		nd - 4	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd bn	nd	nd	nd	nd	nđ	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	4.2	nd 86	nd	nd	nd	nd	nd
BENZENE	nd	nd		92	4.1	7.0	18	17
ETHYLBENZENE	nd		nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES		nd	nd 	nd	nd	nd	nd	nd
o-XYLENE	nd nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES	nd	nd	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	93%	100%	95%	94%	108%	98%	96%	
CHLOROBENZENE	92%	100%	98%	97%	109%	99%		97%
4 BROMOFLUORO BENZENE	91%	97%	94%	93%	106%	99% 96%	98%	99%
ND INDICATES NOT DETECTED AT A DETECTION LIMI	T OF 1.0 UG/L-VAF		MPOUND		10070	90 /6	94%	96%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER TITA DEMENATED DV - MARTO E DIOVED

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FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0119W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (FP.

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR SOIL VAPOR DATA IN PPMV

		BLANK	VPSV945-20	VPSV946-40	VPSV947-40 DUP	VPSV948-60	VPSV949-85	VPSV950-105	VPSV951-120
DATE		01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	
SAMPLING TIME		05:31	07:41	08:01	08:24	08:48	09:15	01/19/00	01/19/00
ANALYSIS TIME		05:31	07:42	08:06	08:30	08:55	09:18	09:39	10:03
SAMPLING DEPTH (feet)			20	40	40	60	85		10.06
VOLUME WITHDRAWN (cc)		200	80	160	160	240	340	105	120
VOLUME INJECTED	DETECTION	1	1	1	1	240	340	420	480
DILUTION FACTOR	LIMITS	1	1	1	1	,	1	1	1
	(ppmv)					<u> </u>		1	1
CARBON TETRACHLORIDE	0.156	nd	nd	1.0	0.9	2.2	5.2		
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd		11	16
CHLOROFORM	0.202	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	0.242	nď	nd	nd	nd		nd	nd	nd
1,1-DICHLORO ETHENE	0.247	nd	nd	9.3	10	nd 1.5	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd		1.2	1.1	1.6
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd		nd	nd	nd	nd
DICHLOROMETHANE	0.282	nd	nd	nd .	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	0.145	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd		nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd 0.2	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd	nd		0.2	nd	nd	nd	nd
TRICHLORO ETHENE	0.182	nd	nd	nd	nd	nd	nd nd	nd	nd
VINYL CHLORIDE	0.381	nd	nd	1.4	1.2	0.4	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd		nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198		nd	nd	nd	nd	nd	nd	nd
1.1,2-TRICHLOROTRIFLUOROETHANE (FR113)	0.198	nd nd	nd 0.5	nd	nd	nd	nd	nd	nd
BENZENE	0.308	nd		11	12	0.5	0.9	2.3	2.2
ETHYLBENZENE	0.226		nd 	nd	nd	nd	nd	nd	nd
TOLUENE	0.261	nd t	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	0.226	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	0.226	nd	nd	nd	nd	nd	. nd	nd	nd
CHLOROMETHANE	0.226	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES	0.481	nd	nd	nd	nd	nd	nd	nd	nd
1.4 DIFLUORO BENZENE									·
CHLOROBENZENE		93%	100%	95%	94%	108%	98%	96%	97%
4 BROMOFLUORO BENZENE		92%	100%	98%	97%	109%	99%	98%	99%
ND INDICATES NOT DETECTED AT LISTED DET	-A+.AII	91%	97%	94%	93%	106%	96%	94%	96%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0119W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

5.75	VPSV952-140		PSV953-140 DUP	PSV953-140 DUP	VPSV954-200	VPSV954-200	VPSV955-35	VPSV955-35
DATE	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00
SAMPLING TIME	10:27	10:27	10:50	10:50	11:17	11:17	11:42	11:42
ANALYSIS TIME	10:31	10:31	10:55	10:55	11:22	11:22	11:47	11:42
SAMPLING DEPTH (feet)	140	140	140	140	200	200	35	35
VOLUME WITHDRAWN (cc)	560	560	560	560	800	800	140	
VOLUME INJECTED	1	1	1	1	1	1	1	140
DILUTION FACTOR	1.	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT RT	AREA
CARBON TETRACHLORIDE	10.3	3,324	10.3	2,946	10.4	308	10.3	
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd		15,537
CHLOROFORM	9.0	1,680	9.1	1,629	nd	nd	nd 9.1	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd		838
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	5.9	13	5.9	12	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENÉ	nd	nd	nd	· nd	nd	nd nd	5 9	. 29
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd		nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd 1	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd		nd	9.8	11,899
TRICHLORO ETHENE	nđ	nd	nd	nd	nd 	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	11.6	350
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd .	nd 	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	. nd	nd	nd	**	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.7	604	5.8	nd 590	nd	nd	nd	nd
BENZENE	nd	nd			nd	nd	5.8	110
ETHYLBENZENE	nd	nd nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd 	nd	nd	nd	nd	nd
m&p-XYLENES	nd		nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE		nd	nd	nd	nd	nd	nd	nd
SURROGATES	nd	nd	nd	nd	nd	nd	nd	nd
1.4 DIFLUORO BENZENE	10.9	217	10.0	000				
CHLOROBENZENE	17.8	505	10.9	220	10.9	221	10.9	222
4 BROMOFLUORO BENZENE	21.1	788	17.8	509	17.8	511	17.8	514
ND INDICATES NOT DETECTED AT A DETECTION			21.1	798	21.1	794	21.1	803

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0119W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV956-55	VPSV956-55	VPSV957-75	VPSV957-75	VPSV958-92	VPSV958-92	VPSV959-92 DUP	VPSV050 02 DUD
DATE	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00		01/19/00
SAMPLING TIME	12:07	12:07	12:58	12:58	13:24	13 24	0 // 10/00	13.47
ANALYSIS TIME	12:12	12:12	13:03	13:03	13:27	13:27	13:52	:
SAMPLING DEPTH (feet)	55	55	75	75	92	92	92	13:52
VOLUME WITHDRAWN (cc)	220	220	300	300	370	370	370	92
VOLUME INJECTED	1	1	1	1	1	370	370	370
DILUTION FACTOR	1	1	1	1	i	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	10.3	31,020	10.3	11,449	10.3	4,181	10 3	
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd		3,989
CHLOROFORM	9.1	694	9.1	3,437	9.1	4,332	nd 9.1	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	-1,552 nd		4,695
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	5.9	62	5.9	34	5.9	21	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	. nd	nd	nd	ndi		5.9	24
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	9.8	23,138	9.8	5,735	9.8	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	3,733 nd		435	9.8	373
TRICHLORO ETHENE	11.6	677	11.6	77	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	5.2	355	nd 	nd.	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd		nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.8	207	5.8	nd 419	nd 5.8	· nd	nd	nd
BENZENE	nd	nd	nd nd			733	5.7	739
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd		nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	uq.	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd .	nd	nd	nd
SURROGATES	, nd	110	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	10.9	219	10.9	220	10.9			
CHLOROBENZENE	17.8	506	17.8	509	17.8	237	10.9	216
4 BROMOFLUORO BENZENE	21.1	792	21.1	796	21.1	547	17.8	496
ND INDICATES NOT DETECTED AT A DETECTION	LIMIT OF 1.0 UG/L-V/			7,50	21.1	861	21.1	784

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0119W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR

SOIL VAPOR DATA IN UG/L-VAPOR

DATE	VPSV952-140 VPS		VPSV954-200	VPSV955-35	VPSV956-55	VPSV957-75	VPSV958-92	VPSV959-92 DU
DATE	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/0
SAMPLING TIME	10:27	10:50	11:17	11:42	12:07	12:58	13:24	13.4
ANALYSIS TIME	10:31	10:55	11:22	11:47	12:12	13:03	13:27	13:5
SAMPLING DEPTH (feet)	140	140	200	35	55	75	92	9
VOLUME WITHDRAWN (cc)	560	560	800	140	220	300	370	37
VOLUME INJECTED	1	1	1	1	1	1	1	57
DILUTION FACTOR	1	1	1		1	1	1	
CARBON TETRACHLORIDE	19	17	1.8	89	178			
CHLOROETHANE/BROMOMETHANE	nd	nd	nd nd	nd		66	24	2
CHLOROFORM	5.6	5.4	nd	2.8	nd	nd	nd	n
1.1-DICHLORO ETHANE	nd	nd	, nd	2.6 nd .	2.3	11	14	1
1,2-DICHLORO ETHANE	nd	nd	nd	nd .	nd	nd	nd	n
1.1-DICHLORO ETHENE	1.5	1.3	nd	3.3	nd 7.0	nd	nd	n
CIS-1,2-DICHLORO ETHENE	nd	nd	. nd	nd nd		3.8	2.4	2.
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd 	nd	nd	n
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	n
TETRACHLORO ETHENE	nd	nd	nd		nd	nd	nd	n
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd d	nd	nd	nd	n
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd nd	nd 	nď.	nd	n
1.1.1-TRICHLORO ETHANE	nd	nd	nd	55	nd 106	nd	nd	n
1,1,2-TRICHLORO ETHANE	nd	nd	nd			26	2.0	1.
TRICHLORO ETHENE	nd	nd	nd	nd 23	nd	nd a a	nd	n
VINYL CHLORIDE	nd	nd	nd		44	5.0	nd	n
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nď	nd	nd	n
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	1.3	nd	n
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	6.7	6.5	nd nd	nd 1.2	nd 2.3	nd	nd	n
BENZENE	nd	nd	nd		· · · · · · · · · · · · · · · · · · ·	4.6	8.1	8.:
ETHYLBENZENE	nd	nd	nd	nd - d	nd	nd	nd	no
TOLUENE	nd	nđ		nd	nd	nd	nd	no
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	no
o-XYLENE	nd	nd	nd nd	nd	nd	nd	nd	ne
CHLOROMETHANE	nd	nd	nd	nd nd	nd nd	nd	nd	no
SURROGATES		- 1.0	· · · · · · · · · · · · · · · · · · ·	ıra -	nu	nd	nd	no
1,4 DIFLUORO BENZENE	94%	96%	96%	97%	95%	96%	103%	94%
CHLOROBENZENE	97%	98%	98%	98%	97%	98%	105%	
4 BROMOFLUORO BENZENE ND INDICATES NOT DETECTED AT A DETECTION L	92%	93%	93%	94%	93%	93%	105%	95% 92%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0119W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN PPMV

		VPSV952-140 VF	SV953-140 DUP	VPSV954-200	VPSV955-35	VPSV956-55	VPSV957-75	VPSV958-92	VPSV959-92 DUP
DATE		01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00	01/19/00
SAMPLING TIME		10:27	10:50	11:17	11:42	12:07	12:58	13:24	13.47
ANALYSIS TIME		10:31	10:55	. 11:22	11:47	12:12	13:03	13:27	13:52
SAMPLING DEPTH (feet)		140	140	200	35	55	75	92	92
VOLUME WITHDRAWN (cc)		560	560	800	140	220	300	370	370
VOLUME INJECTED	DETECTION	1	1	1	1	1	1	370	370
DILUTION FACTOR	LIMITS	1	1.	1	1	1	1	1	1
	(ppmv)						· · · · · · · · · · · · · · · · · · ·		1
CARBON TETRACHLORIDE	0.156	3.0	2.6	0.3	14	28	10	3.8	3.6
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd	nd	nd	
CHLOROFORM	0.202	1.1	1.1	nd	0.6	0.5	2.3	2.9	nd
.1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd nd	nd nd	3.1
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd		nd
1,1-DICHLORO ETHENE	0.247	0.4	0.3	nd	0.8	1.7	0.9	nd 0.6	nd
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	nd		0.7
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nď	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	0.282	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	0.145	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd		nd - 1	nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd	nd t	nd t	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd	10	19	nd 4.7	nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd		0.4	0.3
TRICHLORO ETHENE	0.182	nd	nd	nd	4.2	8.1	nd	nd	nd
VINYL CHLORIDE	0.381	nd	nd	nd	nd		0.9	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd	nd	nd	nd .	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198	nd	nd	nd	nd .	nd	0.2	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	0.128	0.9	0.8	nd	0.2	nd 0,3	nd 0.6	nd	nd
BENZENE	0.308	nd	nd	nd	nd	nd		1.0	1.0
ETHYLBENZENE	0.226	nd	nd	nd	nd		nd	nd	nd
TOLUENE	0.261	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	0.226	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	0.226	nd	nd	nd	nd	nd nd	nd	nd	nd
CHLOROMETHANE	0.481	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES				110	na na	- IIU	nd	nd	nd
1,4 DIFLUORO BENZENE		94%	96%	96%	97%	95%	96%	40221	
CHLOROBENZENE		97%	98%	98%	98%	97%		103%	94%
4 BROMOFLUORO BENZENE		92%	93%	93%	94%	93%	98% 93%	105% 101%	95%
ND INDICATES NOT DETECTED AT LISTED DET	CTION LIMITS FO		Ď		0 1 / 0	33/0	93%	101%	92%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER

DATA DEVIEWED BY: INMES E DICKED

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0120W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	BLANK	BLANK	VPSV960-20	VPSV960-20	VPSV961-35	VPSV961-35	VPSV962-60	VPSV962-60
DATE	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00
SAMPLING TIME	4:43	4:43	7:13	7:13	7:36	7:36	8:01	
ANALYSIS TIME	4:43	4:43	7:16	7:16	7:39	7:39	8:03	8.01
SAMPLING DEPTH (feet)			20	20	35	35	60	8:03
VOLUME WITHDRAWN (cc)	200	200	80	80	140	140	240	60
VOLUME INJECTED	1	1	1	1	1	1	240	240
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd		
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd 	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd		nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	· nd	nd	nd	nd	hd	nd 	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	bn	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nď		nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd 	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd -	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd		nd 	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd - d	nd	nd	nd	nd
VINYL CHLORIDE	nd	nď	nd	nd 	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nď	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd		nd	nd	nd	nď	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd		nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nď	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	·nd	nd	nd	nd	nd
m&p-XYLENES		nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES	nd	nd	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	10.7	247						
CHLOROBENZENE	17.6	247	10.9	237	10.7	226	10.8	229
4 BROMOFLUORO BENZENE	20.8	557	17.8	534	17.7	524	17.7	528
		899	21.0	856	21.0	831	21.0	838
ND INDICATES NOT DETECTED AT A DETECTION	LIMIT OF 1.0 UG/L-VAP	OR FOR EACH CO	DMPOUND					

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

DATA REVIEWED BY TAMES E PICKED

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0120W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	BLANK	VPSV960-20	VPSV961-35	VPSV962-60	VPSV963-80	VPSV964-95	VPSV965-95 DUP
DATE	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00
SAMPLING TIME	04:43	07:13	07:36	08:01	08:22	08:46	09:09
ANALYSIS TIME	04:43	07:16	07:39	08:03	08:27	08:50	09:14
SAMPLING DEPTH (feet)	••	20	35	60	80	95	95
VOLUME WITHDRAWN (cc)	200	80	140	240	320	380	380
VOLUME INJECTED	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	1.3	4.5
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd		1.5
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	. nd	nd	nd	nď	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd - d	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	. nd		nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	. nd	nd nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd nd	nd
SURROGATES					HQ	ilu	nd
1,4 DIFLUORO BENZENE	107%	103%	98%	100%	93%	108%	000/
CHLOROBENZENE	107%	102%	100%	101%	96%	111%	89%
4 BROMOFLUORO BENZENE	105%	100%	97%	98%	92%	107%	91% 88%
ND INDICATES NOT DETECTED AT A DETECTION LIMIT	OF 1.0 UG/L-VAPOR		D		32.70	10776	68%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0120W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR

SOIL VAPOR DATA IN PPMV

DATE		BLANK	VPSV960-20	VPSV961-35	VPSV962-60	VPSV963-80	VPSV964-95	VPSV965-95 DUP
DATE		01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00
SAMPLING TIME		04:43	07:13	07:36	08.01	08:22	08:46	09 09
ANALYSIS TIME		04:43	07:16	07:39	08:03	08:27	08:50	09:14
SAMPLING DEPTH (feet)			20	35	60	80	95	95
VOLUME WITHDRAWN (cc)		200	80	140	240	320	380	380
VOLUME INJECTED	DETECTION	1	1	1	1	1	1	1
DILUTION FACTOR	LIMITS	1	1	1	1	1	1	1
	(ppmv)							
CARBON TETRACHLORIDE	0.156	nd	nd	nd	nd	nd	0.2	0 2
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	0.202	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	nd	
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	· nd	nd	nd	nd nd
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	0.282	nd	nd	nd	nd	nd ·	' nd	nd
TETRACHLORO ETHENE	0.145	nd	nd	nd	nd	nd		nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nď	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	0.182	nd	nd	nd	nd	nd	nd	nd.
VINYL CHLORIDE	0.381	nd	nd	nd	nd	nd	nd - d	nd
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd	nd	nd	nd		nd 	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	0.128	nd	nd	nd .	nd	nd	nd	nd
BENZENE	0.308	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	0.226	nd	nd	nd	nd	nd - d	nd	nd
TOLUENE	0.261	nd	nd	nd	nd	nd - d	nd	nd
m&p-XYLENES	0.226	nd	nd	nd		nd	nd	nd
o-XYLENE	0.226	nd	nd	nd	nd nd	nd	nd	. nd
CHLOROMETHANE	0.481	nd	nd	nd		nd	nd	nd
SURROGATES			TRO .	110	nd	nd	nd	nd
1,4 DIFLUORO BENZENE		107%	103%	98%	100%			
CHLOROBENZENE		107%	102%	100%		93%	108%	89%
4 BROMOFLUORO BENZENE		105%	100%	97%	101% 98%	96%	111%	91%
ND INDICATES NOT DETECTED AT LISTED DET	ECTION LIMITS FOR		10076	9170	98%	92%	107%	88%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER

DATA REVIEWED BY: JAMES E PICKER

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0120W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR AREA COUNTS

	VPSV963-80	VPSV963-80	VPSV964-95	VPSV964-95: VP	SV965-05 DUD	VPSV965-95 DUP	VDCV/000 440	
DATE	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00		VPSV966-110	VPSV966-110
SAMPLING TIME	8:22	8:22	8:46	8:46	9:09	01/20/00	01/20/00	01/20/00
ANALYSIS TIME	8:27	8:27	8:50	8:50	9:14	9:09	9:36	9 36
SAMPLING DEP#H (feet)	80	80	95	95	9.14	9:14	9:38	9:38
VOLUME WITHDRAWN (cc)	320	320	380	380	380	95	110	110
VOLUME INJECTED	1	1	1	1	300	380	440	440
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	, RT	AREA	1	1
CARBON TETRACHLORIDE	nd	nd	10.1	231	10.2	263	RT	AREA
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd		nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	· nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	rid
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd		nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd nd	nd - d	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd 	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd 	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nď	nd	nd	. nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd		nd - 1	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd .	nd	nd nd	nd 	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES			1.0	- 110	Tiq	nd	nd	nd
1,4 DIFLUORO BENZENE	10.7	215	10.7	248	10.8	205	10.8	<u> </u>
CHLOROBENZENE	17.7	501	17.7	581	17.8	473	10.8	210
4 BROMOFLUORO BENZENE	21.0	789	21.0	912	21.0	473 752	17.8 21.0	481 764

752

21.0

764

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1.0 UG/L-VAPOR FOR EACH COMPOUND

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0120W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV967-125	VPSV967-125	VPSV968-140	VPSV968-140	VPSV969-20	VPSV969-20	VPSV970-35	V(00) (0.70 a.c.)
DATE	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	VPSV970-35
SAMPLING TIME	9:57	9:57	10:22	10:22	10:46	10:46		01/20/00
ANALYSIS TIME	10:02	10:02	10:28	10:28	10:52	10:52	11:10	11:10
SAMPLING DEPTH (feet)	125	125	140	140	20	20	11:15	11:15
VOLUME WITHDRAWN (cc)	500	500	560	560	80	80	35	35
VOLUME INJECTED	1	1	1	1	1	80	140	140
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	1 4054
CARBON TETRACHLORIDE	nd	nd	10.3	1,470	nd	nd nd		AREA
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd		10.2	808
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	. nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd - d	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd 	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd nd	nd 	nd '	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd		nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd		nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nď	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nď	nd	nd t	nd	nd	nd
TRICHLORO ETHENE	nd	nd	11.6	37	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd - 1	nd	. nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd		nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	5.7	127	5.8	nd 1,342	nd	nd	nd	nd
BENZENE	nd	nd	nd nd		nd	nd	nd	nd
ETHYLBENZENE	nd	nd		nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd		nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd nd	nd .	nd	nd	nd	nd	nd
SURROGATES	ng .	110	nd	nd	. nd	nd	nd	nd
1,4 DIFLUORO BENZENE	10.8	237	10.9	240	12.5			
CHLOROBENZENE	17.8	543	17.8	240	10.8	260	10.8	260
4 BROMOFLUORO BENZENE	21.0	862	21.0	556 873	17.8	605	17.8	533
ND INDICATES NOT DETECTED AT A DETECTION		POR FOR FACH C	OMPOUND	0/3	21.0	949	21.0	844

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0120W1
GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR SOIL VAPOR DATA IN PPMV

DATE		VPSV966-110	VPSV967-125	VPSV968-140	VPSV969-20	VPSV970-35	VPSV971-35 DUI
SAMPLING TIME		01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/0
ANALYSIS TIME		09:36	09:57	10:22	10:46	11.10	11:3:
SAMPLING DEPTH (feet)		09:38	10:02	10:28	10:52	11:15	11.3
VOLUME WITHDRAWN (cc)		110	125	140	20	35	
VOLUME INJECTED	DETECTION	440	500	560	80	140	3:
DILUTION FACTOR	DETECTION LIMITS	1	1	1	1	1	140
2.comon months		<u> </u>	1	1	1	†	
CARBON TETRACHLORIDE	(ppmv)	· · · · · · · · · · · · · · · · · · ·				<u>`</u>	
CHLOROETHANE/BROMOMETHANE	0.156	nd	nd	1.3	nd	0.7	0.7
CHLOROFORM	0.369	nd	nd	nd	nd	nd	
1,1-DICHLORO ETHANE	0.202	nd	nd	nd	nđ	nd	no
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	no
1,1-DICHLORO ETHENE	0.242	nd	nd	nd	nd	nd	no
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd		no
	0.247	nd	nd	nd	nd	nd 	nd
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nď	nd	nd 	nd
DICHLOROMETHANE TETRACHLORO ETHENE	0.282	nd	nd	nd	nd	nd 	nd
	0.145	nd	nd	nd	nd	nd 	nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	0.182	nd	nd	0.4		nd	nd
VINYL CHLORIDE	0.381	nd	nd	nd	nd nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd	nd	nd		nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198	nd	nd	nd .	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	0.128	nd	0.2	1.9	nd nd	nd	nd
BENZENE	0.308	nd	nd	nd		nd ·	nd
ETHYLBENZENE	0.226	nd	nd	nd	nd	nd	nd
TOLUENE	0.261	nd	nd		nd	nd	nd
m&p-XYLENES	0.226	nd	nd	nd	nd	nd	nd
D-XYLENE	0.226	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	0.481	nd	nd	nd	nd	nd	nd
SURROGATES			102	bn	nd	nd	nd
1,4 DIFLUORO BENZENE		91%	103%	40.40/			
CHLOROBENZENE		92%	· · · · · · · · · · · · · · · · · · ·	104%	113%	113%	106%
BROMOFLUORO BENZENE		80%	104% 101%	107%	116%	102%	108%
ND INDICATES NOT DETECTED AT LISTED DETE	CTION LIMITS FOR	ACH COMPOUND	10176	102%	111%	99%	105%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0120W1
GC SHIMADZU 14A FRONT
VOI ATILE HALOGENATED AND AROMA

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR SOIL VAPOR DATA IN UG/L-VAPOR

DATE	VPSV966-110	VPSV967-125	VPSV968-140	VPSV969-20	VPSV970-35	VPSV971-35 DU
SAMPLING TIME	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00
· · · · · · · · · · · · · · · · · · ·	09:36	09:57	10:22	10:46	11:10	11:33
ANALYSIS TIME	09:38	10:02	10:28	10:52	11:15	11:39
SAMPLING DEPTH (feet)	110	125	140	20	35	35
VOLUME WITHDRAWN (cc)	440	500	560	80	140	140
VOLUME INJECTED	1	1	1	1	1	170
DILUTION FACTOR	1	1	1	1	i	1
CARBON TETRACHLORIDE	nd	nd	8.5			
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	4.7	4.5
CHLOROFORM	nd	. nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd		nd	nd	nd
1.2-DICHLORO ETHANE	nd	nd	nd 	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd ·	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd		nd	nd	nd	nd
DICHLOROMETHANE	nd	nd nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1.1.1.2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE		nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd 	nd	2.4	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd - 1	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd 	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd - d	nd	nd	nd	. nd	nd
BENZENE	nd	1.4	15	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES	nd	nd	nd	nd	nd	nd
I.4 DIFLUORO BENZENE	91%	103%	40.00			
CHLOROBENZENE	92%		104%	113%	113%	106%
BROMOFLUORO BENZENE	92% 89%	104% 101%	107%	116%	102%	108%
ND INDICATES NOT DETECTED AT A DETECTION LIMI	OF LOUIS VADOR FOR	101%	102%	111%	99%	105%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER DATA REVIEWED BY: JAMES F. PICKER

FOSTER WHEELER PROJECT #1572.0298 OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0120W1 GC SHIMADZU 14A FRONT VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR AREA COUNTS

		VPSV971-35 DUP	VPSV972-65	VPSV972-65	VPSV973-80	VPSV973-80	VPSV974-95	VPSV974-95
DATE	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00
SAMPLING TIME	11:33	11:33	12:23	12:23	12:49	12 49	13:10	13:10
ANALYSIS TIME	11:39	11:39	12:27	12:27	12:51	12:51	13:17	13:17
SAMPLING DEPTH (feet)	35	. 35	65	65	80	80	95	95
VOLUME WITHDRAWN (cc)	140	140	260	260	320	320	380	380
VOLUME INJECTED	1	1	1	1	1	1	1	300
DILUTION FACTOR	1	1	1	1	1	i	1	1
	RT	AREA	RT	AREA	RT	AREA.	RT	AREA
CARBON TETRACHLORIDE	10.1	786	nd	nd	nd	nd	nd	
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd		nd
CIS-1,2-DICHLORO ETHENE '	nd	nd	nd	' nd	nd	nd	nd	nd.
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd 	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	··-	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd 	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd d	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd 	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	· nd	nd nd	nd	nd	nd
BENZENE	nd	nd	nd	nd		nd	nd	nd
ETHYLBENZENE	nd	nd	nd	bn bn	nd 	nd	nd	nd
TOLUENE	nd	nd	nd		nd d	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nđ	nd
o-XYLENE	nd	nd	nd	nd	nd - d	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd - d	nd .	nd	nd	nd
SURROGATES			nu	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	10.7	244	10.8	275	10.8	245		
CHLOROBENZENE	17.7	563	17.8	569		215	10.8	227
4 BROMOFLUORO BENZENE	21.0	893	21.0	1032	17.8	499	17.8	526
ND INDICATES NOT DETECTED AT A DETECTION			COMPOUND	1032	21.0	784	21.0	824

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

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FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0120W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV975-108	VPSV975-108	VPSV976-118	VPSV976-118	VPSV977-118 DUP	VPSV977-118 DUP
DATE	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00
SAMPLING TIME	13:37	13:37	14:01	14:01	14:24	14:24
ANALYSIS TIME	13:41	13:41	14:05	14:05	14:29	14:29
SAMPLING DEPTH (feet)	108	108	118	118	118	
VOLUME WITHDRAWN (cc)	435	435	475	475	475	118
VOLUME INJECTED	1	1	1	1	475	475
DILUTION FACTOR	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	10.1	2,447	10.2	9,185	10.3	8,359
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	
CHLOROFORM	nd	nd	9.0	1,198	9.1	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd		986
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd nd	nd
1,1-DICHLORO ETHENE	nd	nd	5.8	13	5.9	nd
CIS-1,2-DICHLORO ETHENE	. nd	nd	nd	nd		. 13
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd 	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd		nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd 	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	5.7	nd 402	nd 	nd
BENZENE	nd	nd			5.8	382
ETHYLBENZENE	nď	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	· nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES	TIQ	IIG	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	10.7	229	10.8	240		
CHLOROBENZENE	17.7	532	17.8	210	10.9	207
4 BROMOFLUORO BENZENE	21.0	840	17.8 21.0	487	17.8	485
ND INDICATES NOT DETECTED AT A DETECTION LI			Z I.U	763	21.0	759
	T. 1.0 00/E-1/A ON	- ON LACH COMPUD	עונו		-	

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

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FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0120W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR

SOIL VAPOR DATA IN PPMV

DATE		VPSV972-65	VPSV973-80	VPSV974-95	VPSV975-108	VPSV976-118	VPSV977-118 DUP
DATE		01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00
SAMPLING TIME		12:23	12:49	13:10	13:37	14:01	14:24
ANALYSIS TIME		12:27	12:51	13:17	13:41	14:05	14:29
SAMPLING DEPTH (feet)		65	80	95	108	118	118
VOLUME WITHDRAWN (cc)		260	320	380	435	475	475
VOLUME INJECTED	DETECTION	1	1	1	. 1	1	1
DILUTION FACTOR	LIMITS	1	1	1	. 1	1	'
	(ppmv)						,
CARBON TETRACHLORIDE	0.156	nd	nd	nd	2.2	8.2	7.5
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd	r.s nd
CHLOROFORM	0.202	nd	nd	nd	nd	0.8	0.7
1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	0.247	nd	nd	nd	nd	0.4	nd 0.4
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	. nd	nd	
TRANS-1,2-DICHLORO ETHENE	0.247	nđ	nd	nd	nd	nd	nd
DICHLOROMETHANE	0.282	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	0.145	nđ	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd		nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd 	nd
TRICHLORO ETHENE	0.182	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	0.381	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd	nd	nd		nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198	nd	nd	nd	nd 	nd	nd
1.1.2-TRICHLOROTRIFLUOROETHANE (FR113)	0.128	nd	nd	nd	nd nd	nd	nd
BENZENE	0.308	nd	nd	nd		0.6	0.5
ETHYLBENZENE	0.226	nd	nd	nd	nd	nd	nd
TOLUENE	0.261	nd	nd	nd	nd	nd	nd
m&p-XYLENES	0.226	nd	nd		nd	nd	nd
o-XYLENE	0.226	nd	nd	nd nd	nd	nd	nd
CHLOROMETHANE	0.481	nd	nd	nd	nd	nd	nd
SURROGATES			- NO	nu	nd	nd	nd
1,4 DIFLUORO BENZENE		120%	93%	99%	4000/		
CHLOROBENZENE		109%	95% 96%	99% 101%	100%	91%	90%
4 BROMOFLUORO BENZENE		121%	92%	96%	102%	93%	93%
ND INDICATES NOT DETECTED AT LISTED DET	ECTION LIMITS FOR	ACH COMPOUND	J4 /0	9076	98%	89%	89%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0120W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

DATE	VPSV972-65	VPSV973-80	VPSV974-95	VPSV975-108	VPSV976-118	VPSV977-118 DUP
SAMPLING TIME	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00	01/20/00
ANALYSIS TIME	12:23	12:49	13:10	13:37	14:01	. 14:24
SAMPLING DEPTH (feet)	12:27	12:51	13:17	13:41	14:05	14:29
VOLUME WITHDRAWN (cc)	65	80	95	108	118	118
VOLUME INJECTED	260	320	380	435	475	475
DILUTION FACTOR	1	1	1	1	1	4/3
DILOTION FACTOR	11	. 1	1	1	. 1	1
CARBON TETRACHLORIDE	nd	nd	_ 1			
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	. 14	53	48
CHLOROFORM	nd		nd .	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd .	nd	4.0	3.3
1,2-DICHLORO ETHANE	nd nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE		nd	nd	nd	1.5	1.5
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	· nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	· nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	. nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nđ	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	กต่	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	. nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	, nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	4.4	nd 4.2
BENZENE	nd	nd	nd	nd	nd	
ETHYLBENZENE	nd	nd	nd	nd	nd	bn
TOLUENE	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd		nd
o-XYLENE	nd	nd	nd	nd	nd nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd
SURROGATES				774	110	nd
1,4 DIFLUORO BENZENE	120%	93%	99%	100%	91%	
CHLOROBENZENE	109%	96%	101%	102%		90%
4 BROMOFLUORO BENZENE	121%	0.20/	96%	98%	93% 89%	93%
ND INDICATES NOT DETECTED AT A DETECTION LIMIT	OF 1.0 UG/L-VAPOR FOR	ACH COMPOUND		30 /0	89%	89%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0121W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

DATE	BLANK	BLANK	VPSV978-25	VPSV978-25	VPSV979-40	VPSV979-40	VPSV980-60	VPSV980-60
SAMPLING TIME	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00
ANALYSIS TIME	4:50	4:50	7:38	7:38	7:59	7:59	8 23	8:23
	4:50	4:50	7:39	7:39	8:03	8:03	8:29	8:29
SAMPLING DEPTH (feet)	••		25	25	40	40	60	60
VOLUME WITHDRAWN (cc)	200	200	100	100	160	160	240	240
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	nd	nd	nd	10,2	485	nd	
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd nd	nd
CHLOROFORM	nđ	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nđ	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	· nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd		nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd 	nd
TRICHLORO ETHENE	nd	nd	nď	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nď	nd	nd	nd - 1	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd		nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	5.6	nd 97	nd	nd
BENZENE	nd	nd	nd	nd	nd		nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd 	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd		nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES			no	II.U	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	10.8	215	10.9	206	10.7			
CHLOROBENZENE	17.7	494	17.8		10.7	230	10.8	226
4 BROMOFLUORO BENZENE	21.0	782	21.0	468	17.7	527	17 7	517
ND INDICATES NOT DETECTED AT A DETECTION LI			21.0	742	21.0	842	21.0	823

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0121W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV981-80	VPSV981-80	VPSV982-100	VPSV982-100	PSV983-100 DUP	PSV983-100 DUP	VPSV984-25	VPSV984-25
DATE	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00
SAMPLING TIME	8:49	8:49	10:31	10:31	10:53	10:53	11:31	11:31
ANALYSIS TIME	8:53	8:53	10:32	10:32	11:00	11:00	11:32	11:32
SAMPLING DEPTH (feet)	80	80	100	100	100	100	25	25
VOLUME WITHDRAWN (cc)	320	320	400	400	400	400	100	100
VOLUME INJECTED	1	1	1	1	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	1
<u> </u>	RT	AREA	RT	AREA	ŔŤ	AREA	RT	ĀRĒĀ
CARBON TETRACHLORIDE	10.3	336	10.3	2683	10.3	2270	nd	nd
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	· nd	nd	9.1	516	9.1	458	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	5.9	10	5.9	12	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	· nd	nd .	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	:
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd nd
1,1,2-TRICHLORO ETHANE	nd	nd	· nd	nd	nd	nd	nd	
TRICHLORO ETHENE	nd	nd	11.6	52	11.6	39	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nď	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	5.8	273	5.8	277	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd		nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES					Tid.	110	no	nd
1,4 DIFLUORO BENZENE	10.8	205	10.9	223	10.9	220	40.0	
CHLOROBENZENE	17.8	477	17.8	501	17.8	504	10.9	208
4 BROMOFLUORO BENZENE	21.0	749	21.0	803	21.0	792	17.8 21.0	475
ND INDICATES NOT DETECTED AT A DETECTION	LIMIT OF 1.0 UG/L-V	APOR FOR EACH	COMPOUND		21.0	192	∠1.0	754

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0121W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN PPMV

		BLANK	VPSV978-25	VPSV979-40	VPSV980-60	VPSV981-80	VPSV982-100 VPS	/983 100 DUD	VPSV984-25
DATE		01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	
SAMPLING TIME		04:50	07:38	07:59	08:23	08:49	10:31		01/21/00
ANALYSIS TIME		04:50	07:39	08:03	08:29	08:53	10:32	10:53	11:31
SAMPLING DEPTH (feet)			25	40	60	80	100	11:00	11:32
VOLUME WITHDRAWN (cc)		200	100	160	240	320	400	100	25
VOLUME INJECTED	DETECTION	1	1	1	1	1	400	400	100
DILUTION FACTOR	LIMITS	1	1	1	i	1	1	1	1
	(ppmv)					<u> </u>		1	1
CARBON TETRACHLORIDE	0.156	nd	nd	0.4	nd	0.3	2.4		
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd		2.0	nd
CHLOROFORM	0.202	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd		0.3	0.3	nd
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	0.247	nd	nd	nd		nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	0.3	0 3	nd
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	0.282	nd	nd	nd	nd	nd	nd	nđ	nd
TETRACHLORO ETHENE	0.145	nd	nd		nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd 	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd		nd	nd	nd	nd	nđ	nd
TRICHLORO ETHENE	0.182	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	0.381	nd	nd	nd	nd	nd	0.6	0.5	nd
TRICHLOROFLUOROMETHANE (FR11)	0.183		nd - 1	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198	nd	nd	nd .	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)		nd nd	nd	nd	. nd	nd	nd	nd	nd
BENZENE	0.308		nd	0.1	nd	nd	0.4	0.4	nd
ETHYLBENZENE	0.226	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE		nd	nd	nd	nd	nd	nd	nd	nd
n&p-XYLENES	0.261	nd	nd	nd	nd	nd	nd	nd	nd
D-XYLENES	0.226	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	0.226	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES	0.481	nd	nd	nd	nd	nd	nd	nd	nd
I.4 DIFLUORO BENZENE		000/						**************************************	
CHLOROBENZENE		93%	90%	100%	98%	89%	97%	96%	90%
BROMOFLUORO BENZENE		95%	90%	101%	99%	91%	96%	97%	91%
ND INDICATES NOT DETECTED AT LISTED DE		92%	87%	99%	96%	88%	94%	93%	88%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER DATA REVIEWED BY: JAMES E. PICKER

IP Labs

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0121W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

	BLANK	VPSV978-25	VPSV979-40	VPSV980-60	VPSV981-80	VPSV982-100 VP	SV983-100 DUP	VPSV984-25
DATE	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00
SAMPLING TIME	04:50	07:38	07:59	08:23	08:49	10:31	10.53	11:31
ANALYSIS TIME	04:50	07:39	08:03	08:29	08:53	10:32	11:00	11:32
SAMPLING DEPTH (feet)	••	25	40	60	80	100	100	25
VOLUME WITHDRAWN (cc)	200	100	160	240	320	400	400	100
VOLUME INJECTED	1	1	1	1	1	1	1	
DILUTION FACTOR	1	1	1	1	1	i	1	1
CARBON TETRACHLORIDE	nd	nd	2.8	nd				
CHLOROETHANE/BROMOMETHANE	nd	nd	nd		1.9	15	13	กต
CHLOROFORM	nd	nd	nd	nd d	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd t	nd	1.7	1.5	nd
1,2-DICHLORO ETHANE	nd	nd		nď	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd		nd	nd	nd	nd	nđ	nd
CIS-1,2-DICHLORO ETHENE	· nd	nd	nd	nd	nd	1.2	1.3	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd nd	nd	nd	ind	nd	nd	nd
DICHLOROMETHANE		nd 	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd nd	nd	nd	nd	nd	nd	nd	nd
1.1.1.2-TETRACHLORO ETHANE		nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd 1	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd 	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	3.4	2.6	nd
	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	. nd	· nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113) BENZENE	nd	nd	1.1	nd	nd	3.0	3.1	nd
	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nď	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nđ	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES							nu .	nd
1,4 DIFLUORO BENZENE	93%	90%	100%	98%	89%	97%	000/	
CHLOROBENZENE	95%	90%	101%	99%	91%		96%	90%
4 BROMOFLUORO BENZENE	92%	87%	99%	96%	88%	96% 94%	97%	91%
ND INDICATES NOT DETECTED AT A DETECTION LIM	IT OF 1.0 UG/L-VAP	OR FOR EACH CO	MPOUND		00 /6	3470	93%	88%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0121W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

DATE:	VPSV985-40	VPSV985-40	VPSV986-55	VPSV986-55	VPSV987-70	VPSV987-70	VPSV988-90	VPSV988-90
DATE	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00
SAMPLING TIME	11:52	11:52	12:15	12:15	12:38	12:38	13:03	13.03
ANALYSIS TIME	. 11:55	11:55	12:19	12:19	12:43	12:43	13:07	13.07
SAMPLING DEPTH (feet)	40	40	55	55	70	70	90	90
VOLUME WITHDRAWN (cc)	160	160	220	220	280	280	360	360
VOLUME INJECTED	1	1	1	1 .	1	1	1	1
DILUTION FACTOR	1	1	1	1	1	1	1	
	RT	AREA	RT	AREA	RT	AREA	RT	AREA
CARBON TETRACHLORIDE	nd	no						
CHLOROETHANE/BROMOMETHANE	nd	no						
CHLOROFORM	nd	no						
1,1-DICHLORO ETHANE	nđ	nd	nd	nd	nd	nd	nd	no
1,2-DICHLORO ETHANE	nd							
1,1-DICHLORO ETHENE	nd	no						
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	· nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd nd	nd
DICHLOROMETHANE	nd							
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd		nd
1,1,1,2-TETRACHLORO ETHANE	nd							
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd nd	nd 4	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd nd	nd 	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd		nd	nd
TRICHLORO ETHENE	nd							
VINYL CHLORIDE	nd							
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd - d	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	5.7	nd 240	nd	nd
BENZENE	nd	nd	nd	nd	nd		nd	nd
ETHYLBENZENE	nd							
TOLUENE	nd							
m&p-XYLENES	nd	nd	nd	nd		nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd nd	nd - 1	nd	nd
CHLOROMETHANE	nd							
SURROGATES			110		TIQ.	nd	nd	nd
1,4 DIFLUORO BENZENE	10.8	231	10.8	227	10.8	024	10.5	
CHLOROBENZENE	17.8	534	17.7	526		234	10.8	225
4 BROMOFLUORO BENZENE	21.0	843	21.0		17.8	544	17.8	522
ND INDICATES NOT DETECTED AT A DETECTION				826	21.0	849	21.0	819

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0121W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN PPMV

		VPSV985-40	VPSV986-55	VPSV987-70	VPSV988-90	VPSV989-90 DUP	VPSV990-155	VPSV991-180	VPSV992-195
DATE		01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00
SAMPLING TIME		11:52	12:15	12:38	13:03	13:26	14:36	15:01	15:23
ANALYSIS TIME		11:55	12:19	12:43	13:07	13:30	14:37	15:02	15:23
SAMPLING DEPTH (feet)		40	55	70	90	90	155	180	19.27
VOLUME WITHDRAWN (cc)		160	220	280	360	360	620	720	780
VOLUME INJECTED	DETECTION	1	1	1	1	1	1	120	780
DILUTION FACTOR	LIMITS	1	1	1	1	1	1	1	1
	(ppmv)						······································		
CARBON TETRACHLORIDE	0.156	nd	nd	nd	nd	nd	3.5	0.3	
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd	nd		nd
CHLOROFORM	0.202	nd	nd	nd	nd	nd	nd	nd	nd
· 1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	_ nd	nd
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd		nd	nd
1,1-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	· nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	0.282	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	0.145	nd	- nd	nd nd	nd		nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nd		nd 4	nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd	nd nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd	nd	nd		nd	nd	nd	nď
TRICHLORO ETHENE	0.182	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	0.381	nd	nd		nd	nd	nd	0.2	nd
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd	nd	nd d	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198	nd	nd	nd .	. nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	0.128	nd	nd	nd 0.3	nd	nd	nd	nd	nd
BENZENE	0.308	nd	nd		nd	nd	6.6	nd	nd
ETHYLBENZENE	0.226	nd		nd 	nd	nd	nd	nd	nd
TOLUENE	0.261	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	0.226	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	0.226	nd	nd nd	nd	nđ	nd	nd	nd	nd
CHLOROMETHANE	0.481	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES	V.401	110	nd	nd	nd	nd	nd	nd	nd
1.4 DIFLUORO BENZENE		4000/	000/						
CHLOROBENZENE		100%	99%	102%	98%	103%	97%	99%	103%
4 BROMOFLUORO BENZENE		102%	101%	104%	100%	106%	97%	100%	104%
ND INDICATES NOT DETECTED AT LISTED DET	COTION HAITS FO	99%	97%	99%	96%	102%	95%	96%	100%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER
DATA REVIEWED BY: JAMES E BICKER

IP Laus

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0121W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

DATE	VPSV985-40	VPSV986-55	VPSV987-70		VPSV989-90 DUP	VPSV990-155	VPSV991-180	VPSV992-195
SAMPLING TIME	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00
ANALYSIS TIME	11:52	12:15	12:38	13:03	13:26	14:36	15:01	15:23
	11:55	12:19	12:43	13:07	13:30	14:37	15:02	15:27
SAMPLING DEPTH (feet)	40	55	70	90	90	155	180	195
VOLUME WITHDRAWN (cc)	160	220	280	360	360	620	720	780
VOLUME INJECTED DILUTION FACTOR	1	1	1	1	1	1	1	100
DIEUTION FACTOR	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	nd							
CHLOROETHANE/BROMOMETHANE	nd .	nd	nd	nd	nd	22	1.6	nd
CHLOROFORM	nd	nd	nď	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE		nd t	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd - d	nd	nd	nd	nđ	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd 	nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nď	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd - d	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd 	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd d	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd 	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	1.0	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	2.7	nd	nd	51	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
·	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES	nd	nd	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	4000							
CHLOROBENZENE	100%	99%	102%	98%	103%	97%	99%	103%
4 BROMOFLUORO BENZENE	102%	101%	104%	100%	106%	97%	100%	104%
ND INDICATES NOT DETECTED AT A DETECTION LI	99%	97%	99%	96%	102%	95%	96%	100%
ANALYSES DEPENDING ON SITE IN DOUG SEPTIS	WIT OF I.U UG/L-VAP	OK FOR EACH CO	MPOUND					

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER DATA REVIEWED BY: JAMES E PICKER

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0121W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV989-90 DUP	VPSV989-90 DUP	VPSV990-155	VPSV990-155	VPSV991-180	VPSV991-180	VPSV992-195	145014666
DATE	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	01/21/00	VPSV992-195
SAMPLING TIME	13:26	13:26	14:36	14:36	15:01	15:01		01/21/00
ANALYSIS TIME	13:30	13:30	14:37	14:37	15:02	15:02	15:23	15:23
SAMPLING DEPTH (feet)	90	90	155	155	180	180	15:27	15:27
VOLUME WITHDRAWN (cc)	360	360	620	620	720	720	195	195
VOLUME INJECTED	1	1	1	1	1	120	780	780
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	1	1
CARBON TETRACHLORIDE	nd	nd	10.3	3880	10.3		RT	AREA
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd		281	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd		nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd - d	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd 	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nđ	nd
1,1,1,2-TETRACHLORO ETHANE	nd	. nd	nd	nd - 1	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd 	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	11.6	16	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd		nd	nđ	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd 5.8	nd	nd	nd	nd	nd
BENZENE	nd	nd		4655	nd	nd	nd	nd
ETHYLBENZENE	nd		nd 	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd 	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nď	nd
SURROGATES	HQ HQ	nd	nd	nd	nd	nd	nd	nd
1.4 DIFLUORO BENZENE	46.7							
CHLOROBENZENE	10.7	238	10.9	224	10.9	227	10.9	236
4 BROMOFLUORO BENZENE	17.7	552	17.8	507	17.8	520	17.8	544
	21.0	871	21.0	812	21.0	821	21.0	854
ND INDICATES NOT DETECTED AT A DETECTION	N LIMIT OF 1.0 UG/L	-VAPOR FOR EACH	COMPOUND					0.04

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER DATA REVIEWED BY: JAMES F. PICKER

IP Labs

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0122W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	BLANK	BLANK	VPSV993-120	VPSV993-120	VPSV994-140	VPSV994-140	VPSV995-140 DUP	VPSV995-140 DUP	VDSV006 155	1/00/1000 100
DATE	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00		
SAMPLING TIME	- 5:17	5:17	7:13	7:13	7:36	7:36		8.03	* 1, 22, 00	01/22/00
ANALYSIS TIME	5:17	5:17	7:15	7:15	7:44	7:44	8:08	8:08	0.20	8:26
SAMPLING DEPTH (feet)			120	120	140	140	140	140	8:33	8:33
VOLUME WITHDRAWN (cc)	200	200	480	480	560	560	560	560	155	155
VOLUME INJECTED	1	1	1	1	1	1	1	300	620	620
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	1 AREA
CARBON TETRACHLORIDE	nd	nd	10.1	1,537	10.4	707	10.3	749		
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	10.2	1,011
CHLOROFORM	nd	nd	8.9	567	nd	nd	nd		nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	5.7	15	6.0	13	6.0	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nď	nd	nd	nd	nd	11	5.8	12
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	. uq	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd		nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd 	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	11.4	59	nd	nd	nd	nđ	nd	nd
VINYL CHLORIDE	nd	nd	nd	nď	nd	nd	nd t	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nđ	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd	5.1	291
1.1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	5.6	336	5.9	231	nd 5.8	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd nd			226	5.7	199
ETHYLBENZENE	nd	nd	nd	nd		nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd		nd 	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd .	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd nd	nd 	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURRUGATES		110	110	- IIG	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	10.8	222	10.7	239	11.0	200	40.0	-		
CHLOROBENZENE	17.7	509	17.6	, 546	17.9	209	10.9	216	10.8	209
4 BROMOFLUORO BENZENE	20.9	815	21.0	927	21.1	484 750	17.8	502	17.7	483
ND INDICATES NOT DETECTED AT A DETECTION				OUND	Z1.1	750	21.0	788	21.0	762

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

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FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0122W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	VPSV997-170	VPSV997-170	VPSV998-185	VPSV998-185	VPSV999-25	VPSV999-25	VPSV1000-45	VPSV1000-45
DATE	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00
SAMPLING TIME	8:51	8:51	9:17	9:17	9:56	9:56	10:17	
ANALYSIS TIME	8:58	8:58	9:22	9:22	9:58	9:58	10:17	10:17
SAMPLING DEPTH (feet)	170	170	185	185	25	25	45	10:21
VOLUME WITHDRAWN (cc)	680	680	740	740	100	100		45
VOLUME INJECTED	1	1	1	1	1	100	180	180
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	1
CARBON TETRACHLORIDE	10.2	1,037	10.2	1,858	nd	i		AREA
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
-1,1-DICHLORO ETHANE	nd	nd	nd	nd	nď	nd	nd	· nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	5.8	14	5.8	17		nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	rid	nd	nd 	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd - 1	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd		nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd 	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd		nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd 	nd	nd	nd	nđ	nd
1,1,2-TRICHLORO ETHANE	nd		nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	11.6	nd 20	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd		11.5	51	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	5.1	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)		303	5.1	307	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	5.7	208	5.7	468	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
•	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	
CHLOROMETHANE SURROGATES	nd	nd	nd	nd	nd	nd	nd	nd
					***	110	110	nd
1,4 DIFLUORO BENZENE	10.8	220	10.8	218	10.9	210	10.8	215
CHLOROBENZENE	17.8	510	17.8	508	17.8	486	17.7	
4 BROMOFLUORO BENZENE	21.0	798	21.0	806	21.0	769	21.0	516 779
ND INDICATES NOT DETECTED AT A DETECTION								

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

DATA POVIEWED BY INMES E DICKED

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0122W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR

AREA COUNTS

	VPSV1001-45 DUP	VPSV1001-45 DUP	VPSV1002-65	VPSV1002-65	VPSV1003-80	VPSV1003-80	VPSV1004-110	1/00///00/
DATE	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	VPSV1004-110
SAMPLING TIME	10:39	10:39	11:03	11:03	11:28	11:28	11.53	01/22/00
ANALYSIS TIME	10:45	10:45	11:09	11:09	11:32	11:32		11.53
SAMPLING DEPTH (feet)	45	45	65	65	80	80	11:56	11:56
VOLUME WITHDRAWN (cc)	180	180	260	260	320	320	110	110
VOLUME INJECTED	1	1	1	1	1	320	440	440
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	l Dř	1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd		RT	AREA
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	10.3	1,530
CHLOROFORM	nd	nd	nd	nd		nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd nd	nd nd	nd	9.1	499
1,2-DICHLORO ETHANE	nd	nd	nd	nd		nd	. nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	· nd	nd	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd		nd - 4	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd 	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd		nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd		nd	nd	nd	nd	11.6	23
TRICHLOROFLUOROMETHANE (FR11)	nd nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE		nd	nd	nd	nd	nd	5.8	543
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	- nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES	nd	nd	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	40.0							nd,
CHLOROBENZENE	10.8	201	10.8	208	10.7	218	108	214
4 BROMOFLUORO BENZENE	17.8	449	17.7	486	17.7	503	17.8	498
	21.0	736	21.0	759	21.0	800	21.0	782
ND INDICATES NOT DETECTED AT A DETECTION	N LIMIT OF 1.0 UG/L-	VAPOR FOR EACH CO	MPOUND					102

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

DATA REVIEWED BY: JAMES E PICKER

FOSTER WHEELER PROJECT # 1572 0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0122W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN UG/L-VAPOR

DATE 01/22/00 01	DATE	BLANK	VPSV993-120	VPSV994-140 V	PSV995-140 DUP	VPSV996-155	VPSV997-170	VPSV998-185	VPSV999-25	VPSV1000-45
ANALYSI TIME	DATE			01/22/00	01/22/00					
AMPLING DEPTH (feet)				07.36	08:03	08:26				
120 140 140 155 170 185 370 185 370 185 370 185 370 380 370 380 370 380 370 380		05:17		07:44	08:08	08:33				
VOLUME WITHOUT NECTOR 200 450 560 560 620 680 740 100 16 10 10 10 10 10 10 10 10 10 10 10 10 10			120	140	140	155				
DOLUTION FACTOR 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		200	480	560	560	620				
CARBON TETRACHLORIDE 10		1	1	1	1	1	1	1	100	180
CHLOROETHANE/BROMOMETHANE nd nd nd nd nd nd nd nd nd n	DILUTION FACTOR	1	1	1	1	1	1	1	1	1
CHLOROETHANE/BROMOMETHANE nd nd nd nd nd nd nd nd nd n	CARBON TETRACHLORIDE	nd .	0.0							
CHLOROFORM	-						6.0	11	nd	nd
1.1-DICHLORO ETHANE	· · · · · · · · · · · · · · · · · · ·					nd	nd	nd	nd	nd
1.2-DICHLORO ETHANE						nd	nd	nd	nd	nd
1.1-DICHLORO ETHENE					nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	· · · · · · · · · · · · · · · · · · ·					nd	- nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE					1.2	1.3	1.6	1.9	nd	nd
DICHLOROMETHANE					nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE					nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE nd					nd	nd	nd	nd		nd
1,1,2,2-TETRACHLORO ETHANE				nd	nd	nd	nd	nd		
1,1,1-TRICHLORO ETHANE 1,1,1-					nd	nd	nd	nd		nd
1.1.2-TRICHLORO ETHANE 1.1.2-TRICHLORO ETHANE 1.2.TRICHLORO ETHANE 1.3.8	· · · · · · · · · · · · · · · · · · ·				nd	nd	nd	nd		
TRICHLORO ETHENE				nd	nd	nd	nd	nd		
VINYL CHLORIDE					nd	nd	nd	nd		
TRICHLOROMETHANE (FR11) nd nd nd nd nd nd nd nd nd n					nd	nd	1.3	3.4		
DICHLORODIFLUOROMETHANE (FR12) Ind i				nd	nd	nd	nd	nd		
1,1,2-TRICHLOROTRIFLUOROETHANE (FR12) nd nd nd nd nd nd nd n	DICHLOROPEUOROMETHANE (FRTT)			nd	.nd	1.1	1.1			
No. Participation Partic	1 1 2 TRICHLOROTRIE HODOSTHANS (FR42)				nd	nd	nd			
TOLUENE				2.6	2.5	2.2	2.3			
TOLUENE nd				nd	nd	nd	nd	nd		
No.				nd	nd	nd	nd	nd	_	
No. AYLENE				nd	nd	nd	nd			
CHLOROMETHANE nd	•			nd	nd	nd	nd			
SURROGATES 1.4 DIFLUORO BENZENE 97% 104% 91% 94% 91% 96% 95% 91% 93% 98% 97% 93% 98% 97% 93% 99% 4 BROMOFLUORO BENZENE 95% 109% 88% 97% 93% 99%					nd	nd	nd		-	
1.4 DIFLUORO BENZENE 97% 104% 91% 94% 91% 96% 95% 91% 93% CHLOROBENZENE 98% 105% 93% 96% 93% 98% 97% 93% 99% 4 BROMOFLUORO BENZENE 95% 109% 88% 00% 90%	SURROGATES	nd	nd	nd	nd	nd	nd	nd		
CHLOROBENZENE 98% 105% 93% 96% 95% 91% 93% 98% 97% 93% 99% 99% 99% 99% 99% 99% 99% 99% 99	1,4 DIFLUORO BENZENE	97%	104%	049/						
4 BROMOFLUORO BENZENE 95% 109% 93% 96% 93% 98% 97% 93% 99%	CHLOROBENZENE								91%	93%
ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF 1 0 UG/I -VAPOR FOR FACH COMPOUND 92% 89% 93% 94% 90% 91%	4 BROMOFLUORO BENZENE	95%	109%	88%						99%
	ND INDICATES NOT DETECTED AT A DETECTION LIN	AIT OF 1.0 UG/I-X	APOR FOR FACE	I COMPOUND	92%	89%	93%	94%	90%	91%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0122W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
SOIL VAPOR DATA IN PPMV

DATE		BLANK	VPSV993-120	VPSV994-140 VPS	SV995-140 DUP	VPSV996-155	VPSV997-170	VPSV998-185	VPSV999-25	LIDO.
SAMPLING TIME		01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00		VPSV1000-45
ANALYSIS TIME		05:17	07:13	07:36	08:03	08:26	08:51	01/22/00	01/22/00	01/22/00
SAMPLING DEPTH (feet)		05:17	07:15	07:44	08:08	08:33	08:58	09:22	09:56	10:17
VOLUME WITHDRAWN (cc)			120	140	140	155	170	185	09.58	10:21
VOLUME INJECTED		200	480	560	560	620	680	740	25	45
DILUTION FACTOR	DETECTION	1	1	1	1	1	1	740	100	180
DICOTION FACTOR	LIMITS	1	1	1	1	1	1	1	1	1
CARBON TETRACHLORIDE	(ppmv)						· · · · · · · · ·	1	1	1
	0.156	nd	1.4	0.6	0.7	0.9	0.9			
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd		1.7	nd	nd
CHLOROFORM	0.202	nd	0.4	nd	nd	nd	nd nd	nd	nd	nd
1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	0.247	nd	0.4	0.4	0.3	0.3	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd		0.4	0.5	nd	nd
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	0.282	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	0.145	nd	nd	nd		nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nď	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	0.182	nd	0.7		nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	0.381	nd	nd	nd	nd	nd	0.2	0.6	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd	nd	nd 	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198	nd	nd	nd	. nd	0.2	1.1	0.2	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	0.128	nd	0.7	nd 0.3	nd	nd	nd	nd	nd	nd
BENZENE	0.308	nd			0.3	0.3	0.3	0.7	nd	nd
ETHYLBENZENE	0.226	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	0.261		nd 	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	0.226	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	0.226	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	0.481	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES	0.401	nd	nd	nd	nd	nd	nd	nd	nd	nd bn
1,4 DIFLUORO BENZENE		070/								nu
CHLOROBENZENE		97%	104%	91%	94%	91%	96%	95%	91%	93%
4 BROMOFLUORO BENZENE		98%	105%	93%	96%	93%	98%	97%	93%	99%
ND INDICATES NOT DETECTED AT LISTED DET	ECTION LIMITORS	95%	109%	88%	92%	89%	93%	94%	90%	91%
ANALYSES PERFORMED ON-SITE IN DOHS CEI	TITLED MODILET	R EACH COMP	מאטט							J170

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: ALLEN GLOVER

DATA REVIEWED BY: JAMES E. PICKER

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0122W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

DATE	VPSV1005-125	VPSV1005-125	VPSV1006-155	VPSV1006-155 VP	SV1007-155 DUP VPS	V1007-155 DUP	VPSV1008-170	1/001/1000
DATE	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	VPSV1008-170
SAMPLING TIME	12:41	12:41	13.03	13:03	13.27	13.27	13.53	01/22/00
ANALYSIS TIME	12:44	12:44	13:09	13:09	13:33	13:33		13.53
SAMPLING DEPTH (feet)	125	125	155	155	155	155	14:00	14:00
VOLUME WITHDRAWN (cc)	500	500	620	620	620	620	170	170
VOLUME INJECTED	1	1	1	1	1	020	680	680
DILUTION FACTOR	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA]	1
CARBON TETRACHLORIDE	10.1	784	10.3	1,144	10.2		RT	AREA
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	1,144	10.3	1,157
CHLOROFORM	nd	nd	9.1	389	9.0	nd	nd	nd
-1,1-DICHLORO ETHANE	nd	nd	nd	nd		445	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd		nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	5.9	nd 4.4	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	11	5.8	12	5.9	13
TRANS-1,2-DICHLORO ETHENE	nd	nd		nd	nd	nd	nd	· nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd 	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd		nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE		nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd 	nd	nd	nd	nď	nd	nd	nd
VINYL CHLORIDE	nd	nd	11.6	16	11.5	15	11.6	48
TRICHLOROFLUOROMETHANE (FR11)	nd	~ nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nď	nd	5.2	414	5.1	413	5.2	278
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd	nd	nd.
BENZENE (FR 113)	5.6	414	5.8	364	5.7	369	5.8	574
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nd	nd
	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE SURROGATES	nd	nd	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE						. 110	ng .	nd
CHLOROBENZENE	10.7	248	10.9	214	10.8	213	10.9	224
4 BROMOFLUORO BENZENE	17.7	570	17.8	498	17.7	492	17.8	224
	20.9	905	21.0	777	21.0	775	21.0	522
ND INDICATES NOT DETECTED AT A DETECTION	LIMIT OF 1.0 UG/L-VA	POR FOR EACH CO	MPOUND			,,,,	21.0	813

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

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FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0122W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR

SOIL VAPOR DATA IN PPMV

DATE	V	PSV1001-45 DUP	VPSV1002-65	VPSV1003-80	VPSV1004-110	VPSV1005-125	VPSV1006-155 VPS	V1007-155 DUP	VPSV1008-17
SAMPLING TIME		01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/0
ANALYSIS TIME		10:39	11:03	11:28	11:53	12:41	13 03	13.27	
		10:45	11:09	11:32	11:56	12:44	13:09	13:33	13.5
SAMPLING DEPTH (feet)		45	65	80	110	125	155	155	14:0
VOLUME WITHDRAWN (cc)		180	260	320	440	500	620	620	17
VOLUME INJECTED	DETECTION	1	1	1	1	1	1	620	68
DILUTION FACTOR	LIMITS	1	1	1	1	i 1	1	1	
OA PROOF TO THE TOTAL OF THE TO	(ppmv)							· · · · · · · · · · · · · · · · · · ·	
CARBON TETRACHLORIDE	0.156	nd	nd	nd	1.4	0.7	1.0	1.0	
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd	nd	1.0	1.6
CHLOROFORM	0.202	nd	nd	nd	0.3	nd	0.3	nd	n
1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd		0 3	ne
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd	nd	' nd	n
1,1-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd	nd	nd	n
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	. nd	0.3	0.3	0.4
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd		nd	nd	no
DICHLOROMETHANE	0.282	nd	nd	nd	nd	nd	nd	nd	no
TETRACHLORO ETHENE	0.145	nd	nd	nd	nd	nd	nd	nd	no
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd 	nd	nd	no
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd 	nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nď	nd	nd		nd	nd	nd	no
TRICHLORO ETHENE	0.182	nd	nd	nd	nd 0.3	nd	nd	nd	nd
VINYL CHLORIDE	0.381	nd	nd	nd		nd	0.2	0.2	0.6
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198	nd	nd	nd	nd	nd .	0.3	0.3	0.2
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	0.128	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	0.308	nd	nd		0.8	0.6	0.5	0.5	0.8
ETHYLBENZENE	0.226	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	0.261	nd	nd	nd 1	nd	nd	nd	nd	nd
m&p-XYLENES	0.226	nd	nd	nd 	nd	nd	nd	nd	nd
D-XYLENE	0.226	nd	nd	nđ	nd - 1	nd	nd	nd	nd
CHLOROMETHANE	0.481	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES			110	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE		87%	90%	95%	0201				
CHLOROBENZENE		86%	93%		93%	108%	93%	93%	97%
BROMOFLUORO BENZENE		86%	89%	96% 94%	95%	109%	95%	94%	100%
ND INDICATES NOT DETECTED AT LISTED DET	ECTION LIMITS F	OR FACH COMPOU	ND 03%	84%	92%	106%	91%	91%	95%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER

DATA DEVIEWED BY. INNEG E DICKED

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FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0122W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR

SOIL VAPOR DATA IN UG/L-VAPOR

DATE	VPSV1001-45 DUP	VPSV1002-65	VPSV1003-80	VPSV1004-110	VPSV1005-125	VPSV1006-155 VPS	V1007-155 DUP	VPSV1008-170
SAMPLING TIME	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00	01/22/00
ANALYSIS TIME	10:39	11:03	11:28	11:53	12:41	13:03	13:27	13:53
SAMPLING DEPTH (feet)	10:45	11:09	11:32	11:56	12:44	13:09	13:33	14:00
VOLUME WITHDRAWN (cc)	45	65	80	110	125	155	155	17.00
VOLUME INJECTED	180	260	320	440	500	620	620	680
DILUTION FACTOR	1	1	1	1	1	1	1	1
DECTIONTACTOR	1	1	1	1	111	1	1	
CARBON TETRACHLORIDE	nd	nd	nd	8.8				
CHLOROETHANE/BROMOMETHANE	nd	nd	nd		4.5	6.6	6.6	6.7
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	1.7	nd	1.3	1.5	nd
1,2-DICHLORO ETHANE	nd	nd		nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	· nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	1.3	1.3	1.4
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	1.5	nd	1.0	1.0	3.2
TRICHLOROFLUOROMETHANE (FR11)	nd	_	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	. nd	nd	1.5	1.5	1.0
1.1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	6.0	4.6	4.0	4.1	6 3
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd nd	nd	nd	nd	nd	nd	nd
D-XYLENE	nd	nd nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES		7144	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	87%	90%	95%	93%	108%	0204		
CHLOROBENZENE	86%	93%	96%	95%		93%	93%	97%
BROMOFLUORO BENZENE	86%	80%	0.407	95% 92%	109% 106%	95%	94%	100%
ID INDICATES NOT DETECTED AT A DETECTION	N LIMIT OF 1.0 UG/I -VA	POR FOR FACH CO	JMPOUND 34./6	32 /0	100%	91%	91%	95%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER DATA REVIEWED BY: JAMES E PICKER

FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0123W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

•	BLANK	BLANK	VPSV1009-20	VPSV1009-20	VPSV1010-35	VPSV1010-35	VPSV1011-50	VPSV1011-50	VPSV1012-70	1/001/4040 70
DATE	01/23/00	01/23/00	01/23/00	01/23/00	01/23/00	01/23/00	01/23/00	01/23/00	01/23/00	VPSV1012-70
SAMPLING TIME	4:42	4:42	6:48	6:48	7:10	7:10	7.33	7:33	7.56	01/23/00
ANALYSIS TIME	4:42	4:42	6:50	6:50	7:13	7:13	7:36	7:36	7.56 8:00	7 56
SAMPLING DEPTH (feet)			20	20	35	35	50	50	70	8:00
VOLUME WITHDRAWN (cc)	200	200	80	80	140	140	200	200	-	70
VOLUME INJECTED	1	1	1	1	1	1	1	200	280	280
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RI	
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd			AREA
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd 	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd 	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd 	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nď	nd	nd	nd 	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	. nd	nd .	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd		nd 	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	ndi
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nđ	nd	nd	nd	nd	nd	nd	nď	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd 	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd 	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd		nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd nd	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd	nd	nd	nd nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	····	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd nd	nd	nd	, nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	. nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd 	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd	nd	nđ	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES		110	110	110	nd	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	10.9	205	10.9	217	10.8	217				
CHLOROBENZENE	17.8	479	17.8	497	10.8 17.8	217	10.8	219	10.8	213
4 BROMOFLUORO BENZENE	21.0	732	21.0	779	17.8 21.0	501	17.8	500	17.8	498
ND INDICATES NOT DETECTED AT A DETECTION		-VAPOR FOR	FACH COMPOU	IND	21.0	795	21.0	801	21.0	784
		OIL OIL	- OH COMPOU	110						

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

DATA DEVIENCED BY JAMES E DIOVED

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FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0123W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR SOIL VAPOR DATA IN PPMV

DATE		BLANK	VPSV1009-20	VPSV1010-35	VPSV1011-50	VPSV1012-70
SAMPLING TIME		01/23/00	01/23/00	01/23/00	01/23/00	01/23/00
ANALYSIS TIME		04:42	06:48	07:10	07:33	07:56
SAMPLING DEPTH (feet)		04:42	06:50	07:13	07:36	08:00
VOLUME WITHDRAWN (cc)		••	20	35	50	70
VOLUME INJECTED		200	80	140	200	280
DILUTION FACTOR	DETECTION	1	1	1	1	200
DIEGRON FACTOR	LIMITS	11	1	1	1	1
CARBON TETRACHLORIDE	(ppmv)					· · · · · · · · · · · · · · · · · · ·
	0.156	nd	nd	nd	nd	nd
CHLOROETHANE/BROMOMETHANE	0.369	nd	nd	nd	nd	nd
CHLOROFORM	0.202	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nď	nd
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	0.247	bn	nd	nd		nd
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd .	nd
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd
DICHLOROMETHANE	0.282	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	0.145	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd		nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd	nd	nd 	nd	nd
TRICHLORO ETHENE	0.182	nd	nd	nd 	nd	nd
VINYL CHLORIDE	0.381	nd	nd	nd	nd	nd
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd		nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198	nď	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	0.128	nd .	nd	nd	nd	nd
BENZENE	0.308	nd	nd	nd	nd	nd
ETHYLBENZENE	0.226		nđ	nd	nd	nd
TOLUENE	0.261	nd 	nd	nd	nd	nd
m&p-XYLENES	0.226	nd	nd	nd	. nd	nd
o-XYLENE	0.226	nd	nd	nd	nd	nd
CHLOROMETHANE	0.481	nd	nd	nd	nd	nd
SURROGATES	0.461	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE		89%				
CHLOROBENZENE			94%	94%	95%	93%
4 BROMOFLUORO BENZENE		92%	95%	96%	96%	95%
ND INDICATES NOT DETECTED AT LISTED DETE	CTION LIMITS FOR EACH	86%	91%	93%	94%	92%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)
ANALYSES PERFORMED BY: ALLEN GLOVER

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FOSTER WHEELER PROJECT # 1572.0298 OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0123W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR

SOIL VAPOR DATA IN UG/L-VAPOR

DATE	BLANK	VPSV1009-20	VPSV1010-35	VPSV1011-50	VPSV1012-70
	01/23/00	01/23/00	01/23/00	01/23/00	01/23/00
SAMPLING TIME	04:42	06:48	07:10	07:33	07:56
ANALYSIS TIME	04:42	06:50	07:13	07:36	08.00
SAMPLING DEPTH (feet)		20	35	50	70
VOLUME WITHDRAWN (cc)	200	80	140	200	280
VOLUME INJECTED	1	1	1	. 1	1
DILUTION FACTOR	1	1	1	1	1
CARBON TETRACHLORIDE	nd	nd	nd	i.a	
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	no
CHLOROFORM	nd	nd	nd	nd	no
1,1-DICHLORO ETHANE	nd	nd	nd	nd	no
1,2-DICHLORO ETHANE	nd	nd	nd	nd 	no
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	nd	. nd	nd	nd	. nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd
DICHLOROMETHANE	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd		nd	nd
TRICHLOROFLUOROMETHANE (FR11)	nd	nd	nd 	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd	nd	nd 	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd	nd nd	nd	nd
BENZENE	nd	nd	nd	nd	nd
ETHYLBENZENE	nd	nd		nd	, nd
TOLUENE	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd - d	nd	nd
o-XYLENE	nd	nd nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd
SURROGATES		IIU	nd	nd	nd
1,4 DIFLUORO BENZENE	89%	94%	94%	95%	620/
CHLOROBENZENE	92%	95%	96%	96%	93%
4 BROMOFLUORO BENZENE	86%	91%	93%	94%	95%
ND INDICATES NOT DETECTED AT A DETECTION LIMIT OF	1.0 UG/L-VAPOR FOR EAC	H COMPOUND		34 /0	92%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

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FOSTER WHEELER PROJECT #1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0123W1
GC SHIMADZU 14A FRONT
VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR
AREA COUNTS

	/PSV1013-70 DUP VPS	V1013-70 DUP	VPSV1014-85	VPSV1014-85	VPSV1015-100	VPSV1015-100	VPSV1016-110	VPSV1016-110	VDC)/4047-400	\(\(\text{(F)}\(\t
DATE	01/23/00	01/23/00	01/23/00	01/23/00	01/23/00	01/23/00	01/23/00	01/23/00		
SAMPLING TIME	8:19	8:19	8:42	8 42	9:06	9:06	9 30	9.30	01/23/00	01/23/00
ANALYSIS TIME	8:23	8:23	8:47	8:47	9:11	9:11	9:35	:	9 53	9 53
SAMPLING DEPTH (feet)	70	70	85	85	100	100	110	9:35 110	9:58	9.58
VOLUME WITHDRAWN (cc)	280	280	340	340	400	400	440	:	130	130
VOLUME INJECTED	1	1	1	1	1	1	440	440	520	520
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1
	RT	AREA	RT	AREA	RT	AREA	RT	AREA	1 RT	1
CARBON TETRACHLORIDE	nd	nd	10.2	1003	10.3	1322	10.2			AREA
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	nd	nd	nd	nd	1836	10.3	263
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd		nd	nd	nd
1,2-DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS-1,2-DICHLORO ETHENE	· nd	nd	nd	nď	nd		nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd	nd	nd	' nd	nd	nd	nd	hd
DICHLOROMETHANE	nd	nd	nd	nd	nd	nd nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd 	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd	nd		nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nđ	nd	nd
1,1,1-TRICHLORO ETHANE	nd	nd	nd		nd	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	11.5	nd 25	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd		11.6	36	11.5	43	11.6	160
TRICHLOROFLUOROMETHANE (FR11)	nd	nd		nd	nd	nd	nd	nd	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	nd		nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd	nd nd	nd	nd	nd	nd	nd	nd	nđ	nđ
BENZENE	nd		5.6	3977	5.7	4598	5.6	4689	5.7	712
ETHYLBENZENE		nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
m&p-XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-XYLENE	nđ	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATES	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1.4 DIFLUORO BENZENE	10.8	218	40.6							
CHLOROBENZENE	17.8		10.8	212	10.9	218	10.8	227	10 8	211
4 BROMOFLUORO BENZENE	17.8 21.0	503	17.8	494	17.8	499	17.8	523	17.8	488
		793	21.0	775	21,1	788	21.0	831	21.0	773
ND INDICATES NOT DETECTED AT A DETECTION	N LIMIT OF 1.0 UG/L-VA	APUR FOR EAC	H COMPOUND							

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

IP Labs

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0123W1 GC SHIMADZU 14A FRONT

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR

SOIL \	VAPOR	DATA IN	UG/L-VAPOR
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DATE	VPSV1013-70 DUP	VPSV1014-85	VPSV1015-100	VPSV1016-110	VPSV1017-13
··-	01/23/00	01/23/00	01/23/00	01/23/00	01/23/0
SAMPLING TIME	08:19	08:42	09:06	09:30	09:5
ANALYSIS TIME	08:23	08:47	09:11	09:35	09:5
SAMPLING DEPTH (feet)	70	85	100	110	13
VOLUME WITHDRAWN (cc)	280	340	400	440	52
VOLUME INJECTED	1	1	1	1	32
DILUTION FACTOR	1	1	1	1	
CARBON TETRACHLORIDE	nd	5.8	7.6		
CHLOROETHANE/BROMOMETHANE	nd	nd	nd	11	1.5
CHLOROFORM	nd	nd	nd	nd	n
1,1-DICHLORO ETHANE	nd	nd	nd	nd	n
1,2-DICHLORO ETHANE	nd	nd	nd	nd	n
1,1-DICHLORO ETHENE	nd	nd		nd	n _e
CIS-1,2-DICHLORO ETHENE	nd	· nd	nd	nd	ne
TRANS-1,2-DICHLORO ETHENE	nd	nd	nd 	nd	n
DICHLOROMETHANE	nd	nd	nd - d	nd	n
TETRACHLORO ETHENE	nd	nd	nd -	nd	n
1,1,1,2-TETRACHLORO ETHANE	nd	nd	nd 	nd	ne
1,1,2,2-TETRACHLORO ETHANE	nd	nd	nd 4	nd	no
1.1.1-TRICHLORO ETHANE	nd		nd	nd	no
1,1,2-TRICHLORO ETHANE	nd	nd	nd	nd	ne
TRICHLORO ETHENE	nd	nd	nd	nd	no
VINYL CHLORIDE	nd	1.7	2.3	2.8	10
TRICHLOROFLUOROMETHANE (FR11)		nd	nd	nd	no
DICHLORODIFLUOROMETHANE (FR12)	nđ - d	nd	nd	nd	no
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	nd nd	nd	nd	nd	no
BENZENE		44	51	52	7.9
ETHYLBENZENE	nd	nd	nd	nd	no
TOLUENE	nd	nd	nd	nd	no
m&p-XYLENES	nd	nd	nd	nd	nd
o-XYLENE	nd	nd	nd	nd	nd
CHLOROMETHANE	nd	nd	nd	nd	nd
SURROGATES	nd	nd	nd	nd	nd
1,4 DIFLUORO BENZENE	95%	92%	95%		
CHLOROBENZENE	96%	95%		99%	92%
4 BROMOFLUORO BENZENE	93%	95% 91%	96% 92%	100% 97%	93%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER DATA REVIEWED BY: IAMES E PICKER

IP Labs

FOSTER WHEELER PROJECT # 1572.0298 JPL OAK GROVE DRIVE PASADENA, CA

HP Labs Project #2K0123W1 GC SHIMADZU 14A FRONT VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010/8020) ANALYSES OF SOIL VAPOR SOIL VAPOR DATA IN PPMV

DATE		VPSV1013-70 DUP	VPSV1014-85	VPSV1015-100	VPSV1016-110	VPSV1017-130
SAMPLING TIME		01/23/00	01/23/00	01/23/00	01/23/00	01/23/00
ANALYSIS TIME		08:19	08:42	09:06	09:30	01/23/00
SAMPLING DEPTH (feet)		08:23	08:47	09:11	09:35	09:58
VOLUME WITHDRAWN (cc)		70	85	100	110	130
VOLUME INJECTED		280	340	400	440	520
DILUTION FACTOR	DETECTION	1	1	1	1	520
DECTION FACTOR	LIMITS	1	1	1	1	:
CARBON TETRACHLORIDE	(ppmv)					<u> </u>
	0.156	nd	0.9	1.2	1.6	0.0
CHLOROETHANE/BROMOMETHANE CHLOROFORM	0.369	nd	nd	nd	nd	0.2
	0.202	nd	nd	nd	nd	nd
1,1-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd .
1,2-DICHLORO ETHANE	0.242	nd	nd	nd	nd	nd
1,1-DICHLORO ETHENE	0.247	nd	nd	nd		nd
CIS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd
TRANS-1,2-DICHLORO ETHENE	0.247	nd	nd	nd	nd	nd
DICHLOROMETHANE	0.282	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	0.145	nd	nd	nd	nd	nd
1,1,1,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd
1,1,2,2-TETRACHLORO ETHANE	0.143	nd	nd	nd	nd	nd
1,1,1-TRICHLORO ETHANE	0.180	nd	nd	nd	nd	nd
1,1,2-TRICHLORO ETHANE	0.180	nd	nd		nd	nd
TRICHLORO ETHENE	0.182	nd	0.3	nd 0.4	nd	nd
VINYL CHLORIDE	0.381	nd	nd		0.5	1.9
TRICHLOROFLUOROMETHANE (FR11)	0.183	nd	nd	nd - d	nd	nd
DICHLORODIFLUOROMETHANE (FR12)	0.198	nd		nd	nd	nd
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	0.128	nd	nd 5.6	nd o s	nd	nd
BENZENE	0.308	nd	· · · · · · · · · · · · · · · · · · ·	6.5	6.6	1.0
ETHYLBENZENE	0.226	nd	nd	nd	nd	nd
TOLUENE	0.261		nd	nd	nd	nd
m&p-XYLENES	0.226	nd	nd	nd	nd	nd
o-XYLENE	0.226	nd nd	nd	nd	nd	nd
CHLOROMETHANE	0.481	nd	nd	nd	nd	nd
SURROGATES	0.401	na	nd	nd	nd	nd
1,4 DIFLUORO BENZENE		0504				
CHLOROBENZENE		95%	92%	95%	99%	92%
4 BROMOFLUORO BENZENE		96%	95%	96%	100%	93%
ND INDICATES NOT DETECTED AT LISTED DETE	CTION LIMITE FOR	93%	91%	92%	97%	91%
ANALYSES PERFORMED ON SITE IN DOUG CER	CHON LIMITS FOR	EACH COMPOUND				

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745) ANALYSES PERFORMED BY: ALLEN GLOVER

APPENDIX B-2 CHAIN-OF-CUSTODY FORMS

iransglobal Environmental Geochemistry 432 N. Cedros Avenue Solana Beach, CA 92075 (619) 793-0401 Fax: (619) 793-0404 Chain of stody Record

TEG Project # : 2 KO 17 W
Outside Lab:

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Client: Foster									_					Da	te:	<u>Ja</u>	nu	lar	Y	17	7, 2	200	0			Pa	ige Of_2 anager: <u>B</u> ,G, <i>Rand</i>	
Address: 611 An	ton B	Ivd. S	te. 86	0			·							Cli	ent	Рго	ject	#:	<u>15</u>	72	2.0	29	18	P	roject	t Ma	anager: B.G. Rand	olph
<u>Costa 1</u>	lesa,	CA 9	2626											Lo	catio	on:	J	<u>PL</u>		Pa	Sal	dei	na		·			
<u>Costa 1</u> Phone: <u>714/444</u>	553	27	Fax:	714/	444	-55	560																	pho	ate of	f Co	ollection: 1/17/00	
ļ				⊤	······································	T		Т	Γ	Γ																1		
											el)																	
								8010	15 (gasoline)	8015 (diesel)	15 (gas & diesel)	8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	90	Semi Vol 8270	PNA 8310/8270	Organic Lead	pa								Total # of containers
				Se	ımple	Cor	ntainer	88	TPH 8015	88	TPH 8015 (A 80	A 80	H 4	ST/P	2 82	١٥	4 83	anic	Total Lead	als				l			#
Sample #	Depth	Time	Date]]	уре	T	уре	8 8	臣	TPH	1P	VOA	Š	TR	PŘ	Š	Ser	N d	Ogo	Tota	Metals					F	Field Notes	Tota
Blank	<u> - </u>	0712	1/17/0	· Va	por	Sy	ringe	X				X														0	Volume Purgedince:	Z
VPSV-918	20					<u> </u>	"	\geq	L			\boxtimes															80	12
VPSV-919	40	0921				<u> </u>		\geq	1			X															160	2
•	60	0947		No	samp	/e-	tip#	3 01	ugg	ed:	ca	ın	+ 4	lon	00	pu	rge	,									_	
	85	0949		No	Samp	le-7	1744	pl	ugg	eli	Ca	n	of b	lag	00	rd	in	e									-	-
-	100	0952		W.	Fany	le-1	11#5	pl	199	ed;	م	un	st a	Car	ه د	^ p	ing	e										7-
	120	0955		Wo	Sany	le-7	Tipte	yle	990	l;	ca	nn	ot.	ola	wo	+ 1	uz	e										
VPSV-920	145	1004						\times				X															580	2
	165	1028		No.	sampl	1-1	ip#8	den	1900	l_{ic}	an	not	14	w	or)	ou	ze											_
VPSV-921	180	1033						\times				X															720	2
VPSV-922	190	1059						\mathbb{X}				\times															760	2
VPSV-923 (Dup)	190	1125						\times				X															760	2
_	20	1148		No.	Sampl	12-T	p#	dlu	900	. ; c	an	not	bla	w	rA	ur	e											7-
VPSV-924	35	1151						\boxtimes	0			X														\top	140	2
	55	1213		No	sampl	2-1	p#3	glu	900	l;c	ans	cot	blo	00	· pu	rge							1				-	-
Relinquished by: (signatu	1	Date / T		Receiv	ed by:	(signa	ture)		7	7 [ate	/ Tin	ne						T	otal	# of	cont	ainer	s:		N	Votes:	
Mathew L. Hunt	1/17/6	0/145	i4 2		>	A				, -) ate		5				Cha	ain o			•		//N/N	-		_		
Relinquished by: (signatu	ne)	Receiv	ed by:	(signa	ture)	•		, C	Date	/ Tim	ne				R	lecei					//N/N on/co	- 1						

ransglobal Environmental Geochemistry 432 N. Cedros Avenue Solana Beach, CA 92075 (619) 793-0401 Fax: (619) 793-0404 Chain of stody Record

TEG Project # : 2K0/17W/
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ransglobal Environmental Geochemistry 432 N. Cedros Avenue Solana Beach, CA 92075 (619) 793-0401 Fax: (619) 793-0404

Chain or	stody Record
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TEG Project # : 2K0118Wl
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ransglobal Environmental Geochemistry 432 N. Cedros Avenue Solana Beach, CA 92075 (619) 793-0401 Fax: (619) 793-0404

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ransglobal Environmental Geochemistry 432 N. Cedros Avenue Solana Beach, CA 92075 (619) 793-0401 Fax: (619) 793-0404

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TEG Project # : 2K0II9Wl

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TEG Project # : 2K0J20Wl

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ransglobal Environmental Geochemistry 432 N. Cedros Avenue Solana Beach, CA 92075 (619) 793-0401 Fax: (619) 793-0404 Chain of stody Record

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Costa M Phone: 714/444	esa, c	<u>CA 9.</u>	2626	,			_					Lo	cati	on:	J	PL	<u>- P</u>	as	ad	en	<u> </u>					
Phone: 714/444	552	7	Fax: <u>7</u>	14/444	-5560							Co	ollec	tor:	M	1. [fu	nt				_ D	ate	of C	Collection: 1/20/00	<u>}</u>
Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	JOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals		Resident in the second of the				Field Notes	Total # of containers
_	50	1221	1/20/00	Vapor	Syringe				le;	Tip	#	3 01	ugg	ed	; Ca	n	of	blo	100	, ,	urg	٤	_		Volume purged in co:	
VPSV-972	65	1223		1 1	110	X				X			1												260	2
VPSV-973	80	1249				X				X									ļ						320	2
VPSV-974	95	1310				X				X															380	2
VPSV-975	108	1337				X				X															435	1
VPSV-976	118	1401				X				X															475	2
VPSV-977 (Dup)	118	1424	_			X				X															475	2
		ļ				-				_									_	ļ			_			
		<u> </u>				╂				-	\dashv								<u> </u>	├-						
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																			<u> </u>							
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Relinquished by: (signatu Mathew Z Hun Relinquished by: (signatu		Date / 1		eceived by:	dela			l 1-	Date /	30	0				Ch	ain (of Cı	usto	dy se	eals	taine Y/N/N Y/N/N	IA			Notes:	and and an annual section of the sec
remiquished by. (signatu	(e)	Date / I	mile N	eccived by.	(Signature)			L	ale /	1 11 11	,c				F	Rece	ived	goo	d co	ndit	on/co	ld				

ransglobal Environmental Geochemistry 432 N. Cedros Avenue Solana Beach, CA 92075 (619) 793-0401 Fax: (619) 793-0404 Chain or stody Record

TEG Project # : 2KOI2|W|

Outside Lab:

	Client: Foster W Address: 611 Anton			800					- · · ·						Da	te:	Ja	h	ıar	7,	21	, 2	000)		F	Page	1	C)f 2	
	Costa Me	esa.Ci	4 926	26		······································									Ulli	ent	Pro	ject T	.#: 01 -	<u> 12</u> - D		ada	<u>~7</u>	0	- Pro	oject i	Manag	ger: <i>D.</i> (<u> 1. Ka</u>	endolph	1_
	Phone: 714/444	1-55	27	Fax:	714,	/44	4-5	560																	_ Da	te of	Collec	tion: <u>J</u>	/21/1	,00	
																															T
	Sample #	Depth	Time	Date	T	mple ype	T	tainer ⁄pe	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals						Notes			Total # of containers
1	Blank		0450	1/21/00	Vap	oer	Syr	inge	\boxtimes				X						_								Volum	ne purg	ed in	cc: -	2
1	VPSV-978	25	0738		ļ		<u> </u>	10	\boxtimes				X		_													100)		12
٦	VPSV-979	40	0759		ļ		<u> </u>	<u> </u>	\boxtimes				\boxtimes			l												160)		2
\forall	VPSV-980	60	0823			<u> </u>	<u> </u>		X				\boxtimes															240)		2
\forall	VPSV-981	80	0849		ļ				X				\boxtimes															320	5		2
7	VPSV-982	100	0915			<u> </u>	<u> </u>		\boxtimes				\boxtimes															400	5		2
\dashv	VPSV-983 (Dup)		1053						\boxtimes				\times															400			2
	VPSV-982	100	0937						X				X														400 (re-sam powers	pled o	tue to)	2
ſ	VPSV-982	100	1003						\boxtimes				X														400 (re-samp	ded di	se to)	2
1	VPSV-982	100	1031						X				X														400 (powers powers	ilika.	re to)	2
-[VPSV-984	25	1131			}			X				X		\neg												1	100	1		2
\exists	VPSV-985	40	1152						X				X															160			2
\neg	VPSV-986	55	1215						X				X															220			2
\dashv	VPSV-987	70	1238						X				X															280)		2
\dashv	VPSV-988	90	1303						X				X															360			2
	Relinquished by: (signatur	re)	Date / T	ime F	Receive	d by:	(signal	ure)			C	ate	/ Tim	ne l						To	otal	# of	cont	ainers	s:		Notes	:			1
	Mathew Z. Hunt	- 1/2	وا /00/١	532_		5	to	Ce		- 1	·	ノト	ں ہے۔	3				Cha	ain o	f Cu	stod	y sea	als Y	/N/N/	^ _						
	Relinquished by: (signatur	re)	Date / T				(signal						/ Tim					_	,					יאיאי.	-		-				
						•												К	ecei	ved	good	o cor	lditio	n/col	a [_		1				

ransglobal Environmental Geochemistry 432 N. Cedros Avenue Solana Beach, CA 92075 (619) 793-0401 Fax: (619) 793-0404 Chain of stody Record

TEG Project # : 2K0121W1	
Outside Lab:	

Client: Faster Address: 6/1 Am Casta / Phone: 7/4/444	Whee Ion Bi Yesa, -552	ler Ivd. S CA	Ste. 1 12620 Fax: 1	800 ; 114/444	-5560							Loc	catio	on:	7	rua PL	- P	asa	a de	na					Page <u>2</u> Of Manager <u>B.G. Ran</u> Collection: <u>1/21/o</u>	•	<u>-</u>
Sample #	Depth	Time	Date	Sample Type	Container Type	_	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals						Field Notes		Total # of containers
VPSV-989 (Dup)	90	1326	1/21/00	Vapor	Syringe	\boxtimes			_/	X	_	_		_		_	_								Volume purged in a	c:360	2
	115	1430		No sample	; Tip #6,	ug	edi	caa	not	-64	ow	or,	pu	zge													
	135	1433		Nosampl	Tip #7 p	ugg	ed;	car	not	blo	ow .	2r/	rus	ge													
VPSV-990	155	1436				X				\boxtimes															620		2
VPSV-991	180	1501				\boxtimes				\vee															720		2
VPSV-992	195	1523				\boxtimes				\times															780		2
																											_
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										T														L			
																\neg											
										\neg			7	\neg	\neg	\neg		_			一						
										_	十	1	7	\dashv	_		\neg				\neg				 	-	
									$\neg \vdash$		\dashv	\dashv	\dashv			- †	\dashv						-1				
Relinquished by: (signatur Mothew L. Hunt Relinquished by: (signatur	1/21/	Date / T	32 _	eceived by: (ALC				ate /			1.,		1,	l Cha	ain o	f Cu	stod	y se	als \	aine (/N/N (/N/N	۱A			Notes:		
reciniquisticu by, (signatui	·)	Date / I	mic K	cocived by. ((១មើល។			U	ale /	HM	٤				R	ecei	ved	good	d cor	nditio	n/co	old					

ransglobal Environmental Geochemistry 432 N. Cedros Avenue Solana Beach, CA 92075 (619) 793-0401 Fax: (619) 793-0404 Chain of stody Record

TEG Project #:	2K0	122WI	······································	
Outside Lah				

Client: Foster W	heeler		· · · · · ·		····	·								D-		1					2	20	100				1 000		
Address: 611 Ant			te: 80	0				-	_						iont	Dro	ion	. н.	vy	<u>~</u>	<u>لر ×</u>	176	28			Pag	ie <u>l</u> Of 3 nager: <u>B.G. Rand</u>	<u> </u>	<u>_</u>
Costa														ال	cati	on:	njeci TI	(#. DJ.	- <u>/-</u> - Y	0	ad	010	10	_ Pi	roject	t Mar	hager: D.G. Kana	COLP	<u>n</u>
Phone: 7/4/444-	5527	,	Fax:	714	444	L - 5	560								ollec							er				£ 0 all	1/22/20		_
	1	T	1	1		T			_	1	· · · ·						<u> </u>		7~						ate o	T COII	llection: <u>1/22/<i>oc</i></u>	<u></u>	
																									ŀ	İ			
Sample #	Depth	Time	Date		mple ype	,	ainer pe	OA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals								Total # of containers
Blank		0517	1/22/6				inge		-	1		Ź	^	-		2	S			<u> </u>	2						eld Notes		<u>2</u>
VPSV-993	120	0713	1		7	1-7.	100	X			1	$\langle \cdot \rangle$						\dashv				-	-	\dashv		101	lume purged in co	· .	2
VPSV-994	140	0736		1	†	†	<u> </u>	X				X					-	\dashv			_	_				-	<u>480</u> 560		<u>~</u>
WSV-995 (Dup)		0803			1		<u> </u>	X			_	X											-	\dashv			560		2
VPSV-996	155	0826			†	1	1					X		一	\neg		_	\neg	\neg			\neg	\dashv		_	-	620		<u>~</u>
VPSV-997	170	0851						X				X		\neg		\neg	ᅦ		\dashv			_	十		_	_	680		2
VPSV-998	185	0917		1		 		X			*	d				\dashv		\dashv				\neg	\dashv	\dashv	_		740	- -	$\frac{2}{\lambda}$
VPSV-999	25	0956						X				X			\neg	\dashv		7		<u></u>		ᅦ		-	1		100		2
VPSV-1000	45	1017						X				A				7		_				\dashv		_	\dashv		180		2
VPSV-1001 (Dup)	45	1039						X				X					\dashv		\exists			\dashv		\dashv	_		180		2
VPSV-1002	65	1103						X				X		寸								\dashv	_	_		-	260		2
VPSV-1003	80	1128						X				X						\neg						-		+-	320		2
	95	1151		No	Samy	le; Ti	o#5	pl	199	ed	; c	201 41	of	bl	ow.	on	Вa	na	e				$\neg \vdash$			_		一:	_
VPSV-1004	110	1153		1		1		X	PA			X	-									\dashv	_	+	\dashv	-	440	1	5
VPSV-1004 VPSV-1005	125	1241		1 ,		Ι,		\boxtimes				Ž		\dashv				1	\dashv		_	\dashv		\dashv			500		2
Relinquished by: (signatur	e)	Date / T	ime	Receive	d by:	(signati	ıre)			13	ate /	Tim	ie					1	 T(otal :	# of a	cont	ainer	s:		Not			\exists
Matthew Z. Hum	+ 1/=	12/00/1	358		>	<i>A</i> ,				15) } ``	8 -1	4				Cha	ain o					/N/N	-					
Relinquished by: (signatur	e)	Date / T	ime	Receive	ed by:	(signati	ıre)			D	ate /	Tim	ie				Þ	000					/N/N			_			
																	ĸ	ecer	vea i	3000	con	aitio	in/col	a [·	-			

ransglobal Environmental Geochemistry 432 N. Cedros Avenue Solana Beach, CA 92075 (619) 793-0401 Fax: (619) 793-0404 Chain of stody Record

TEG Project # :	2K0122W	1	
Outside Lab			

Client: Foster 1 Address: 611 Arts Costa 1 Phone: 714/444	Nheels n Blva Mesa, (1-55.	ex 1. Stc. CA 9 27	. 800 2626 Fax: J	714/44	4-5560	2						10	cati	on.	.1	PL	- K	n c	٠, ,	مدوا	0					0f G. Ran 122/01		
Sample #	Depth	Time	Date	Sample Type	Container Type	VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	VOC 8260	Semi Vol 8270	PNA 8310/8270	Organic Lead	Total Lead	Metals					Field	Notes			Total # of containers
	140	1301	1/22/00	Vapor	Syringe	N	0 50	em	06	:1	iρ	F8	plu	990	d;	ca	rna	1-6	lou	or	pu	rge	4_	Volun	e purge	din cc:	_	_
VPSV-1006	155					X				\boxtimes									_			0	_		620)		<u>ス</u>
VISV-1007 (Dup)	155	1327				\geq	1_			\boxtimes														<u> </u>	620			
VPSV-1008	170	1353		1		\boxtimes	1			\bowtie															680	<u>) </u>		2
			<u> </u>																					 				
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								L																				
Relinquished by: (signatu Mathew 1. Hunt		Date / 7	Time R	eceived by:	(signature)		- /-	1 2	Date	I Im B	ne				Ch	ain d	of Cu	usto	# of dy se s inta	als	Y/N/	/NA		 Notes				
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√ransglobal Environmental Geochemistry 432 N. Cedros Avenue Solana Beach, CA 92075 (619) 793-0401 Fax: (619) 793-0404 Chain of stody Record

TEG Project # : 2KOI23WI

Outside Lab:

Client: Foster W								"				Da	te:	J	an	иа	vy	, 2	3,	20	00			P	age I Of I	
Address: 611 And	on Bli	vd. 51	e. 80	<u> </u>			_					Cli	ent	Pro	ject	#:	15	7.	2.0	72	18	Pi	rojec	t N	Manager: <u>B.G. Rando</u>	lph
Costa / Phone: 714/444	Mesa,	CA T	2626	711/11	111	1	_					Lo	cati	on:	<u>J</u>	<u>'L'</u>	- <i> </i>	<u>as</u>	ac	en	a					
Phone: 714/444	· 55 Z	7	Fax: _	114/49	14-556C	<i></i>						Со	llec	tor:	M	, H	un	1				_ D	ate o	of C	Collection: 1/23/00	
						VOA 8010	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (gas & diesel)	VOA 8020 (BTEX)	VOA 8020 (MTBE)	TRPH 418.1	PEST/PCB's 8080	8260	Voi 8270	PNA 8310/8270	Organic Lead	Total Lead	S							Total # of containers
Sample #	Depth	Time	Date	Sample Type	Container Type	V V	PH.	гРН (PH	0/ A	Ó	RP.	EST	8	Semi	NA NA	Organ	otal	Metals						Field Notes	otal
Blank	-	1		1	Syringe		打	_	-	Ź	\dashv	-	-		"		Ť		=	-		\dashv	-		Volume purged in cc: -	
VPSV-1009	20	0648	1	1	1773	X				Ħ										-		\exists			80	12
VPSV-1010	35	0710				X				X															140	2
VPSV-1011	50	0733				X				X															200	12
VPSV-1012	70	0756				X				X												\neg			280	12
VPSV-1013 (Oup)	\$570	0819				X				X															280	12
VPSV-1014	85	0842				X				X															340	2
VPSV-1015	100	0906				X				X															400	2
VPSV-1016	110	0930				X				X															440	2
	120	0951		Nosam	ple: Tip#	8	plu	491	d;	ca	no	0+	60	94	01	~ A	us	ge								1-
VPSV-1017	130	0953				X			7	X								<i>9</i>							520	12
Relinquished by: (signatu Mathew Z. Hund	ire) - 1/23	Date / 1			(signature)				15	/ Tim クロ 3 ~6	5				Ch	ain o	of Cu	isto	dy se	als	tainer Y/N/N Y/N/N	IA			Notes:	
Relinquished by: (signatu	ıre)	Date / 1	ime F	Received by:	(signature)				Date	/ Tim	пе				F	Rece					on/co	H				

APPENDIX B-3 INITIAL THREE-POINT CALIBRATION DATA

SOIL GAS INITIAL LCS STANDARD REPORT (3-POINT CALIBRATION VERIFICATION)

LAB: WINN 1

SUPPLY SOURCE: ACCUSTANDARD LOT# A7120170

INSTRUMENT: SHIMADZU GC14A FRONT

COMPOUND	DETECTOR	CAL DATE	AVE CF	MASS	RT	AREA	CF	%DIFF
CARBON TETRACHLORIDE								
CHLOROFORM	HALL	10/04/99	174	20	10.5	3,973	199	14.3%
1,1-DICHLORO ETHANE	HALL	10/04/99	301	20	9.2	6,824	341	13,2%
1,2-DICHLORO ETHANE	HALL	10/04/99	219	20	8.0	4,658	233	6.3%
1,1-DICHLORO ETHENE	HALL	10/04/99	290	20	10.6	6,202	310	6.8%
CIS-1,2-DICHLORO ETHENE	PID	10/04/99	8.90	20	6.1	189	9.45	6.2%
	PID	10/04/99	12.2	20	8.9	255	12.8	4.5%
TRANS-1,2-DICHLORO ETHENE	PID	10/04/99	21.1	20	7.2	441	22.1	4.5%
DICHLOROMETHANE	HALL	10/04/99	227	20	6.8	5,057	253	11.5%
TETRACHLORO ETHENE	PID	10/04/99	13.2	20	16.1	277	13.9	4.9%
1,1,1,2-TETRACHLORO ETHANE/CHLOROBENZENE	HALL	10/04/99	170	40	18.2	7.670	192	12.9%
1,1,2,2-TETRACHLORO ETHANE	HALL	10/04/99	200	20	21.1	4,541	227	13.8%
1,1,1-TRICHLORO ETHANE	HALL	10/04/99	218	20	10.0	4,686	234	7.3%
1,1,2-TRICHLORO ETHANE	HALL	10/04/99	223	20	15.3	4,991	250	12.0%
TRICHLORO ETHENE	PID	10/04/99	15.3	20	11.8	314	15.7	2.6%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	10/04/99	90.5	20	5.9	2,077	104	14.8%
BENZENE	212				······································			
ETHYLBENZENE	PID	10/04/99	26.8	20	10.7	560	28.0	4.5%
TOLUENE	PID	10/04/99	29.4	20	18.1	616	30.8	4.8%
m&p-XYLENES	PID	10/04/99	27.3	20	14.5	558	27.9	2.2%
o-XYLENE	PID	10/04/99	30.7	40	18.3	1,284	32.1	4.6%
OATENE	PID	10/04/99	27.9	20	19.5	575	28.8	3.0%
1,4 DIFLUORO BENZENE	PID	10/04/99	11.5	20	11.1	230	11.5	0.00
CHLOROBENZENE	PID	10/04/99	26.1	20	18.0	513	25.7	0.0%
4 BROMOFLUORO BENZENE	PID	10/04/99	42.7	20	21.3	876	43.8	1.7% 2.6%

ANALYSES PERFORMED IN HP LAB'S MOBILE LABORATORY

INITIAL CALIBRATION (3-POINT)

WINNEBAGO 1
SUPPLY SOURCE: ACCUSTANDARD LOT# A9050254
INSTRUMENT: SHIMADZU GC14A FRONT

COMPOUND	DETECTOR	CAL DATE			STANDAR	_	1		STANDARD		1	HIGH	STANDARD		T	CLINA	MARY	
	DETECTOR	CALDATE	RT	MASS	AREA	CF	RT	MASS	AREA	CF	RT	MASS	AREA	CF	AVE PT		•	0/00-
CARBON TETRACHLORIDE CHLOROETHANE/BROMOMETHANE CHLOROFORM 1,1-DICHLORO ETHANE 1,2-DICHLORO ETHANE 1,3-DICHLORO ETHENE CIS-1,2-DICHLORO ETHENE CRANS-1,2-DICHLORO ETHENE DICHLOROMETHANE TETRACHLORO ETHENE 1,1,1,2-TETRACHLORO ETHANE/CHLOROBENZENE 1,1,2-TETRACHLORO ETHANE 1,1,2-TRICHLORO ETHANE	HALL HALL HALL HALL PID PID PID HALL PID HALL HALL HALL HALL HALL HALL HALL HAL	10/04/99 10/04/99 10/04/99 10/04/99 10/04/99 10/04/99 10/04/99 10/04/99 10/04/99 10/04/99 10/04/99 10/04/99	10.5 4.9 9.2 7.9 10.6 6.1 8.8 7.2 6.8 16.1 18.2 21.0 10.0 15.3 11.8 4.1	2.0 4.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2	315 445 627 440 603 18.9 26.4 45.6 424 27.8 646 348 446 405 34.0	158 111 314 220 302 9.5 13.2 22.8 212 13.9 162 174 223 203 17.0	10.5 4.9 9.2 7.9 10.6 6.1 8.8 7.2 6.8 16.1 18.2 21.0 10.0 15.3 11.8	20.0 40.0 20.0 20.0 20.0 20.0 20.0 20.0	3386 4858 5702 4162 5589 175 242 418 4251 264 6917 4145 4112 4377 298	169 121 285 208 279 8.8 12.1 20.9 213 13.2 173 207 206 219 14.9	10.5 4.8 9.2 7.9 10.6 6.1 8.8 7.2 6.8 16.1 18.2 21.0 10.0 15.3 11.8	150 300 150 150 150 150 150 150 150 150 300 150 150 150	29177 43285 45808 34393 43484 1263 1716 2936 38390 1870 52472 32646 33961 37069 2088	CF 195 144 305 229 290 8.4 11.4 19.6 256 12.5 175 218 226 247 13.9	10.5 4 9 9.2 7.9 10.6 6.1 8.8 7.2 6.8 16.1 18.2 21.0 10.0 15.3 11.8	AVE CF 174 126 301 219 290 8 90 12 2 21.1 227 13.2 170 200 218 223 15.3	18 9 16 9 14 6 10 6 11 0 0.5 0.9 1.6 25 2 0.7 7.2 22 8 11 2 22 6 1.6	%RSE 10 9% 13.5% 4.9% 4.8% 5.9% 7.7% 11.1% 5.4% 4.3% 11.4% 5.1% 10.1%
TRICHLOROFLUOROMETHANE (FR11) DICHLORODIFLUOROMETHANE (FR12) 1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL HALL HALL	10/04/99 10/04/99 10/04/99	5.3 3.7 5.9	2.0 2.0 2.0 2.0	469 548 82.9 149	235 274 41.5 74.5	4.1 5.3 3.6 5.9	20.0 20.0 20.0 20.0	4093 5632 1113 1848	205 282 55.7 92.4	4.1 5.3 3.6 5.9	150 150 150 150	27583 38991 10799 15672	184 260 72.0 104	4.1 5.3 3.6 5.9	208 272 56.4 90.5	1.6 25.4 11.0 15.3 15.1	10.3% 12.2% 4.0% 27.1% 16.7%
BENZENE ETHYLBENZENE FOLUENE RIBP-XYLENES P-XYLENE	PID PID PID PID PID	10/04/99 10/04/99	10.6 18.1 14.5 18.3 19.5	2.0 2.0 2.0 4.0 2.0	58.6 67.5 59.8 140 64.9	29.3 33.8 29.9 35.0 32.5	10.6 18.1 14.5 18.3 19.5	20.0 20.0 20.0 40.0 20.0	531 577 536 1211 532	26.6 28.9 26.8 30.3 26.6	10.6 18.1 14.5 18.3 19.5	150 150 150 300 150	3700 3847 3771 8047 3678	24.7 25.6 25.1 26.8 24.5	10.6 18.1 14.5 18.3 19.5	26.8 29.4 27.3 30.7 27.9	2.3 4.1 2.4 4.1 4.1	8.7% 13.9% 8.8% 13.4% 14.7%
CHLOROMETHANE	HALL	10/04/99	4.1	2.0	119	59.50	4.0	20.0	1780	89.0	4.0	150	16245	108	40	85.6	24.6	28.7%
4 DIFLUORO BENZENE HLOROBENZENE BROMOFLUORO BENZENE NALYSES PERFORMED IN HP LAB'S MOBILE LABORAT	PID PID PID	10/04/99	11.1 18.0 21.3	2.0 2.0 2.0	26.3 56.0 92.6	13.2 28.0 46.3	11.1 18.0 21.3	20.0 20.0 20.0	226 499 837	25.0	11.1 18.0 21.3	150 150 150		10.1 25.3 39.9	11.1 18.0 21.3	11 5 26.1 42.7	1.5 1.7 3.3	13.2% 6.4% 7.6%

APPENDIX B-4

DAILY OPENING, CLOSING, AND CONTINUING CALIBRATION VERIFICATION REPORTS

QA/QC - CALIBRATION DATA

DATE: 01/21/00		S	UPPLY SOU	RCE: (CAL	IBRATION VER	RIFICATION	
HP Labs Project #2K0121W1			CCUSTANDA			10, (11011)	
WINNEBAGO 1					ZU GC14A FR	ONT	
					TINUING STAN		
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	CF	%DIFF
CARBON TETRACHLORIDE	HALL	174	20	10.2	3,316	166	4.6%
1,1-DICHLORO ETHANE	HALL	219	20	7.7	4,027	201	8.1%
1,2-DICHLORO ETHANE	HALL	290	20	10.4	5,635	282	2.9%
1,1-DICHLORO ETHENE	PID	8.90	20	5.8	167	8.35	6.2%
CIS-1,2-DICHLORO ETHENE	PID	12.2	20	8.6	220	11.0	9.8%
TRANS-1,2-DICHLORO ETHENE	PID	21.1	20	7.0	392	19.6	7.1%
TETRACHLORO ETHENE	PID	13.2	20	15.8	282	14.1	6.8%
1,1,1-TRICHLORO ETHANE	HALL	218	20	9.7	4,019	201	7.9%
1,1,2-TRICHLORO ETHANE	HALL	223	20	15.0	4,302	215	3.5%
TRICHLORO ETHENE	PID	15.3	20	11.6	291	14.6	4.9%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	. HALL	90.5	20	5.7	1,488	74.4	17.8%
BENZENE	PID	26.8	20	10.4	446	22.3	16.8%
ETHYLBENZENE	PID	29.4	20	17.9	477	23.9	18.9%
TOLUENE	PID	27.3	20	14.2	509	25.5	6.8%
m&p-XYLENES	PID	30.7	40	18.1	999	25.0	18.6%
o-XYLENE	PID	27.9	20	19.2	490	24.5	12.2%
1,4 DIFLUORO BENZENE	PID	11.5	20	10.8	203	10.2	11.7%
CHLOROBENZENE	PID	26.1	20	17.7	495	24.8	5.2%
4 BROMOFLUORO BENZENE	PID	42.7	20	21.0	738	36.9	13.6%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

QA/QC - CALIBRATION DATA

DATE: 01/21/00 HP Labs Project #2K0121W1 WINNEBAGO 1			SUPPLY S	OURCE:	CONTINUI QUALITY (CONTROL (CLOSING)	PENING) A ACCUSTA	CCUST/ NDARD	ANDARD LC LOT # A712	T # A90502	254
			INSTRUME		IMADZU G		IT					
COMPOUND	DETECTOR	AVE RF	MASS	RT	NING STAN		0/ 5/55			SING STAN	DARD	
CARBON TETRACHLORIDE	HALL	174			AREA	CF	%DIFF	MASS	RT	AREA	CF	%DIFF
1,1-DICHLORO ETHANE	HALL	219	20	10.2	3,817	191	9.8%	20	10.2	3,426	171	1.4%
1,2-DICHLORO ETHANE	HALL	1	20	7.7	4,775	239	9.0%	20	7.7	4,003	200	8.6%
1,1-DICHLORO ETHENE	PID	290	20	10.4	6,612	331	13.9%	20	10.4	6,227	311	7.3%
CIS-1,2-DICHLORO ETHENE		8.90	20	5.8	158	7.90	11.2%	20	5.8	147	7.35	17.4%
TRANS-1,2-DICHLORO ETHENE	PID	12.2	20	8.6	210	10.5	13.9%	20	8.6	213	10.7	12.7%
TETRACHLORO ETHENE	PID	21.1	20	7.0	360	18.0	14.7%	20	7.0	340	17.0	19.4%
	PID	13.2	20	15.8	245	12.3	7.2%	20	15.8	244	12.2	7.6%
1,1,1-TRICHLORO ETHANE	HALL	218	20	9.7	4,844	242	10.9%	20	9.7	4,524	226	3.6%
1,1,2-TRICHLORO ETHANE	HALL	223	20	15.0	5,089	254	14.2%	20	15.0	4,197	210	5.8%
TRICHLORO ETHENE	PID	15.3	20	11.5	263	13.2	14.1%	20	11.6	269	13.5	12.1%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	90.5	20	5.7	1,792	89.6	1.0%	20	5.7	1,600	80.0	11.6%
BENZENE	PID	26.8	20	10.4	465	23.3	13.2%	20	10.4	470	23.5	
ETHYLBENZENE	PID	29.4	20	17.8	541	27.1	8.0%	20	17.9	495		12.3%
TOLUENE	PID	27.3	20	14.2	481	24.1	11.9%	20	14.2		24.8	15.8%
m&p-XYLENES	PID	30.7	40	18.0	1,103	27.6	10.2%	40		482	24.1	11.7%
o-XYLENE	PID	27.9	20	19.2	480	24.0	14.0%	20	18.1	1,096	27.4	10.7%
1,4 DIFLUORO BENZENE	PID	11.5	20	10.8	201	10.1			19.2	484	24.2	13.3%
CHLOROBENZENE	PID	26.1	20	17.7	466	23.3	12.6%	20	10.8	202	10.1	12.2%
4 BROMOFLUORO BENZENE	PID	42.7	20	20.9	813	23.3 40.7	10.7%	20	17.7	517	25.9	1.0%
ANALYSES PERFORMED ON-SITE IN DOHS CERTIF			/ (CEDT #1	7.4E\	013	40.7	4.8%	20	21.0	817	40.9	4.3%

HP Labs

QA/QC - CALIBRATION DATA

DATE: 01/20/00		Si	JPPLY SOU	RCF: (CAL	IBRATION VER	RIFICATION	
HP Labs Project #2K0120W1			CUSTANDA			(11 10) (110)	
WINNEBAGO 1		IN:	STRUMENT	: SHIMAE	ZU GC14A FR	ONT	
					INUING STAN		
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	CF	%DIFF
CARBON TETRACHLORIDE	HALL	174	20	10.2	2,821	141	18.8%
1,1-DICHLORO ETHANE	HALL	219	20	7.7	3,618	181	17.4%
1,2-DICHLORO ETHANE	HALL	290	20	10.3	5,253	263	9.5%
1,1-DICHLORO ETHENE	PID	8.90	20	5.8	152	7.60	14.6%
CIS-1,2-DICHLORO ETHENE	PID	12.2	20	8.6	206	10.3	15.6%
TRANS-1,2-DICHLORO ETHENE	PID	21.1	20	7.0	352	17.6	16.6%
TETRACHLORO ETHENE	PID	13.2	20	15.8	246	12.3	6.8%
1,1,1-TRICHLORO ETHANE	HALL	218	20	9.7	3,625	181	17.0%
1,1,2-TRICHLORO ETHANE	HALL	223	20	15.0	3,775	189	15.3%
TRICHLORO ETHENE	PID	15.3	20	11.5	297	14.9	2.9%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	. 90.5	20	5.7	1,521	76.1	16.0%
BENZENE	PID	26.8	20	10.4	449	22.5	16.2%
ETHYLBENZENE	PID	29.4	20	17.9	505	25.3	14.1%
TOLUENE	PID	27.3	20	14.2	513	25.7	6.0%
m&p-XYLENES	PID	30.7	40	18.1	824	20.6	32.9%
o-XYLENE	PID	27.9	20	19.2	484	24.2	13.3%
1,4 DIFLUORO BENZENE	PID	11.5	20	10.8	202	10.1	12.2%
CHLOROBENZENE	PID	26.1	20	17.8	459	23.0	12.1%
4 BROMOFLUORO BENZENE	PID	42.7	20	21.0	766	38.3	10.3%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

HP Labs

QA/QC - CALIBRATION DATA

DATE: 01/20/00		~	SUPPLY SO	OURCE:	CONTINUI	NG CALIBR	ATION (OF	ENING) A	CCUSTA	ANDARD LO	T # A90502	254
HP Labs Project #2K0120W1					QUALITY (
WINNEBAGO 1					HMADZU GO							
				OPE	NING STAN	DARD			CLO	SING STAN	IDARD	
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	CF	%DIFF	MASS	RT	AREA	CF	%DIFF
CARBON TETRACHLORIDE	HALL	174	20	10.2	3,590	180	3.3%	20	10.2	3,297	165	5.1%
1,1-DICHLORO ETHANE	HALL	219	20	7.7	4,714	236	7.6%	20	7.7	4,056	203	7.4%
1,2-DICHLORO ETHANE	HALL	290	20	10.3	6,174	309	6.3%	20	10.4	4.814	241	17.1%
1,1-DICHLORO ETHENE	PID	8.90	20	5.8	158	7.90	11.2%	20	5.8	155	7.75	12.9%
CIS-1,2-DICHLORO ETHENE	PID	12.2	20	8.6	223	11.2	8.6%	20	8.6	230	11.5	5.7%
TRANS-1,2-DICHLORO ETHENE	PID	21.1	20	7.0	368	18.4	12.8%	20	7.0	358	17.9	15.2%
TETRACHLORO ETHENE	PID	13.2	20	15.8	249	12.5	5.7%	20	15.8	241	12.1	8:7%
1,1,1-TRICHLORO ETHANE	HALL	218	20	9.7	4,559	228	4.4%	20	9.7	4,262	213	2.4%
1,1,2-TRICHLORO ETHANE	HALL	223	20	15.0	4,701	235	5.5%	20	15.0	4,358	218	2.2%
TRICHLORO ETHENE	PID	15.3	20	11.5	276	13.8	9.8%	20	11.5	256	12.8	16.3%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	90.5	20	5.7	1,915	95.8	5.8%	20	5.7	2,088	104.4	15.4%
BENZENE	PID	26.8	20	10.4	491	24.6	8.4%	20	10.4	451	22.6	15.9%
ETHYLBENZENE	PID	29.4	20	17.8	520	26.0	11.6%	20	17.9	489	24.5	16.8%
TOLUENE	PID	27.3	20	14.2	495	24.8	9.3%	20	14.2	462	23.1	15.4%
m&p-XYLENES .	PID	30.7	40	18.0	1,117	27.9	9.0%	40	18.1	1,070	26.8	12.9%
o-XYLENE	PID	27.9	20	19.2	488	24.4	12.5%	20	19.2	510	25.5	8.6%
1,4 DIFLUORO BENZENE	PID	11.5	20	10.8	208	10.4	9.6%	20	10.8	191	9.6	17.0%
CHLOROBENZENE	PID	26.1	20	17.7	491	24.6	5.9%	20	17.7	478	23.9	8.4%
4 BROMOFLUORO BENZENE	PID	42.7	20	21.0	821	41.1	3.9%	20	21.0	806	40.3	5.6%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

QA/QC - CALIBRATION DATA

DATE: 01/19/00 SUPPLY SOURCE: (CALIBRATION VERIFICATION)
HP Labs Project #2K0119W1 ACCUSTANDARD LOT # A7120170

WINNEBAGO 1 INSTRUMENT: SHIMADZU GC14A FRON

DETECTOR			CONT	TALL HALC CTANK	0.4.0.0	
DETECTOR			50111	INUING STANI	DARD	
	AVE RF	MASS	RT	AREA	CF	%DIFF
HALL	174	20	10.3	3,034	152	12.7%
HALL	219	20	7.8	4,081	204	6.9%
HALL	290	20	10.4	5,578	279	3.9%
PID	8.90	20	5.9	168	8.40	5.6%
PID	12.2	20	8.7	249	12.5	2.0%
PID	21.1	20	7.1	449	22.5	6.4%
PID	13.2	20	15.9	294	14.7	11.4%
HALL	218	20	9.8	3,849	192	11.8%
HALL	223	20	15.1	4,034	202	9.5%
PID	15.3	20	11.6	270	13.5	11.8%
HALL	90.5	20	5.8	. 1,626	81.3	10.2%
PID	26.8	20	10.5	483	24.2	9.9%
PID	29.4	20	17.9	479	24.0	18.5%
PID	27.3	20	14.3	591	29.6	8.2%
PID	30.7	40	18.1	903	22.6	26.5%
PID	27.9	20	19.3	453	22.7	18.8%
PID	11.5	20	10.9	228	11.4	0.9%
PID	26.1	20	17.8	533	26.7	2.1%
PID	42.7	20	21.0	862	43.1	0.9%
	HALL PID PID PID HALL PID HALL PID PID PID PID PID PID PID PID	HALL 219 HALL 290 PID 8.90 PID 12.2 PID 21.1 PID 13.2 HALL 218 HALL 223 PID 15.3 HALL 90.5 PID 26.8 PID 29.4 PID 27.3 PID 30.7 PID 30.7 PID 27.9 PID 11.5 PID 26.1 PID 26.1	HALL 219 20 HALL 290 20 PID 8.90 20 PID 12.2 20 PID 21.1 20 PID 13.2 20 HALL 218 20 HALL 223 20 PID 15.3 20 HALL 90.5 20 PID 26.8 20 PID 29.4 20 PID 27.3 20 PID 27.3 20 PID 30.7 40 PID 27.9 20 PID 27.9 20 PID 27.9 20 PID 26.1 20	HALL 219 20 7.8 HALL 290 20 10.4 PID 8.90 20 5.9 PID 12.2 20 8.7 PID 21.1 20 7.1 PID 13.2 20 15.9 HALL 218 20 9.8 HALL 223 20 15.1 PID 15.3 20 11.6 HALL 90.5 20 5.8 PID 26.8 20 10.5 PID 29.4 20 17.9 PID 27.3 20 14.3 PID 30.7 40 18.1 PID 30.7 40 18.1 PID 27.9 20 19.3 PID 27.9 20 19.3 PID 26.1 20 17.8 PID 26.1 20 17.8 PID 26.1 20 17.8 PID 26.1 20 17.8	HALL 219 20 7.8 4,081 HALL 290 20 10.4 5,578 PID 8.90 20 5.9 168 PID 12.2 20 8.7 249 PID 21.1 20 7.1 449 PID 13.2 20 15.9 294 HALL 218 20 9.8 3,849 HALL 223 20 15.1 4,034 PID 15.3 20 11.6 270 HALL 90.5 20 5.8 1,626 PID 26.8 20 10.5 483 PID 29.4 20 17.9 479 PID 27.3 20 14.3 591 PID 30.7 40 18.1 903 PID 27.9 20 19.3 453 PID 27.9 20 19.3 453 PID 26.1 20 17.8 533 PID 26.1 20 17.8 533 PID 26.1 20 17.8 533 PID 26.1 20 17.8 533	HALL 219 20 7.8 4,081 204 HALL 290 20 10.4 5,578 279 PID 8.90 20 5.9 168 8.40 PID 12.2 20 8.7 249 12.5 PID 21.1 20 7.1 449 22.5 PID 13.2 20 15.9 294 14.7 HALL 218 20 9.8 3,849 192 HALL 223 20 15.1 4,034 202 PID 15.3 20 11.6 270 13.5 HALL 90.5 20 5.8 1,626 81.3 PID 26.8 20 10.5 483 24.2 PID 29.4 20 17.9 479 24.0 PID 27.3 20 14.3 591 29.6 PID 30.7 40 18.1 903 22.6 PID 27.9 20 19.3 453 22.7 PID 26.1 20 17.8 533 26.7 PID 26.1 20 17.8 533 26.7 PID 26.1 20 17.8 533 26.7 PID 26.1 20 17.8 533 26.7 PID 26.1 20 17.8 533 26.7 PID 26.1 20 17.8 533 26.7

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

QA/QC - CALIBRATION DATA

DATE: 01/19/00			SUPPLY SO	OURCE:	CONTINUI	NG CALIBE	ATION (OF	PENING) A	CCLIST	ANDARD LC	T # 10050	25.4
HP Labs Project #2K0119W1			SUPPLY SO	OURCE:	QUALITY (CONTROL (CLOSING)	ACCUSTA	NDARD	LOT # A712	71 # A9050, 20170	254
WINNEBAGO 1			INSTRUME	NT: SE	HMADZU GO	C14A FRON	IT			LOT# ATTZ	20170	
00145011115				OPE	NING STAN	DARD			CLC	SING STAN	DARD	
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	CF	%DIFF	MASS	RT	AREA	CF	%DIFF
CARBON TETRACHLORIDE	HALL	174	20	10.2	3,897	195	12.1%	20	10.2	3,586	179	3.2%
1,1-DICHLORO ETHANE	HALL	219	20	7.7	4,303	215	1.8%	20	7.7	3,850	193	12.1%
1,2-DICHLORO ETHANE	HALL	290	20	10.4	6,544	327	12.7%	20	10.4	6,008	300	3.5%
1,1-DICHLORO ETHENE	PID	8.90	20	5.8	166	8.30	6.7%	20	5.9	160	8.00	10.1%
CIS-1,2-DICHLORO ETHENE	PID	12.2	20	8.6	242	12.1	0.8%	20	8.6	222	11.1	9.0%
TRANS-1,2-DICHLORO ETHENE	PID	21.1	20	7.0	408	20.4	3.3%	20	7.0	379	19.0	10.2%
TETRACHLORO ETHENE	PID	13.2	20	15.8	269	13.5	1.9%	20	15.8	252	12.6	4.5%
1,1,1-TRICHLORO ETHANE	HALL	218	20	9.7	4,492	225	2.9%	20	9.7	4,412	221	1.1%
1,1,2-TRICHLORO ETHANE	HALL	223	20	15.0	5,075	254	13.9%	20	15.1	4,063	203	8.8%
TRICHLORO ETHENE	PID	15.3	20	11.5	297	14.9	2.9%	20	11.6	303	15.2	1.0%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	90.5	20	5.7	2,009	100.5	11.0%	20	5.7	1,961	98.1	8.3%
BENZENE	PID	26.8	20	10.4	532	26.6	0.7%	20	10.4	497	24.9	7.3%
ETHYLBENZENE	PID	29.4	20	17.8	610	30.5	3.7%	20	17.9	513	25.7	12.8%
TOLUENE	PID	27.3	20	14.2	535	26.8	2.0%	20	14.3	523	26.2	4.2%
m&p-XYLENES	PID	30.7	40	18.0	1,200	30.0	2.3%	40	18.1	996	24.9	18.9%
o-XYLENE	PID	27.9	20	19.2	530	26.5	5.0%	20	19.3	506	25.3	9.3%
1,4 DIFLUORO BENZENE	PID	11.5	20	10.8	224	11.2	2.6%	20	10.8	218	10.9	5.2%
CHLOROBENZENE	PID	26.1	20	17.7	479	24.0	8.2%	20	17.8	480	24.0	8.0%
4 BROMOFLUORO BENZENE	PID	42.7	20	21.0	879	44.0	2.9%	20	21.0	852	42.6	0.2%
ANALYSES PERFORMED ON-SITE IN DOHS CERTI	FIED MOBILE LAR	RORATOR	V (CERT #1	7.45)							72.0	U.Z.A

QA/QC - CALIBRATION DATA

DATE: 01/18/00		SU	JPPLY SOUI	RCE: (CAL	IBRATION VE	RIFICATION	
HP Labs Project #2K0118W1			CCUSTANDA			13/11/3/1/	
WINNEBAGO 1					ZU GC14A FR	ONT	
				CONT	INUING STAN		
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	CF	%DIFF
CARBON TETRACHLORIDE	HALL	174	20	10.2	3,238	162	6.8%
1,1-DICHLORO ETHANE	HALL	219	20	7.7	4,846	242	10.6%
1,2-DICHLORO ETHANE	HALL	290	20	10.4	4,966	248	14.5%
1,1-DICHLORO ETHENE	PID	8.90	20	5.8	156	7.80	12.4%
CIS-1,2-DICHLORO ETHENE	PID	12.2	20	8.6	217	10.9	11.1%
TRANS-1,2-DICHLORO ETHENE	PID	21.1	20	7.0	370	18.5	12.3%
TETRACHLORO ETHENE	PID	13.2	20	15.8	240	12.0	9.1%
1,1,1-TRICHLORO ETHANE	HALL	218	20	9.7	4,188	209	4.1%
1,1,2-TRICHLORO ETHANE	HALL	223	20	15.0	4,855	243	9.0%
TRICHLORO ETHENE	PID	15.3	20	11.5	269	13.5	12.1%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	90.5	20	5.7	2,063	103.2	14.0%
BENZENE	PID	26.8	20	10.4	481	24.1	10.3%
ETHYLBENZENE	PID	29.4	20	17.9	535	26.8	9.0%
TOLUENE	PID	27.3	20	14.2	473	23.7	13.4%
m&p-XYLENES	PID	30.7	40	18.1	1,060	26.5	13.7%
o-XYLENE	PID	27.9	20	19.2	467	23.4	16.3%
1,4 DIFLUORO BENZENE	PID	11.5	20	10.8	202	10.1	12.2%
CHLOROBENZENE	PID	26.1	20	17.7	444	22.2	14.9%
4 BROMOFLUORO BENZENE	PID	42.7	20	21.0	778	38.9	8.9%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

HP Labs

QA/QC - CALIBRATION DATA

DATE: 01/18/00			SUPPLY SC	OURCE:	CONTINUIN	NG CALIBR	ATION (OF	PENING) A	CCUST/	ANDARDIO	T # A90502	254
HP Labs Project #2K0118W1			SUPPLY SC	OURCE:	QUALITY C	CONTROL (CLOSING)	ACCUSTA	NDARD	LOT # A712	0170	.54
WINNEBAGO 1					HIMADZU GO							
		Ĭ		OPE	NING STAN	DARD			CLO	SING STAN	DARD	
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	CF	%DIFF	MASS	RT	AREA	CF	%DIFF
CARBON TETRACHLORIDE	HALL	174	20	10.2	3,848	192	10.7%	20	10.2	3,145	157	9.5%
1,1-DICHLORO ETHANE	HALL	219	20	7.7	4,718	236	7.7%	20	7.7	4,643	232	6.0%
1,2-DICHLORO ETHANE	HALL	290	20	10.4	6,641	332	14.4%	20	10.4	5,110	256	12.0%
1,1-DICHLORO ETHENE	PID	8.90	20	5.8	155	7.75	12.9%	20	5.9	161	8.05	9.6%
CIS-1,2-DICHLORO ETHENE	PID	12.2	20	8.6	227	11.4	7.0%	20	8.6	233	11.7	4.5%
TRANS-1,2-DICHLORO ETHENE	PID	21.1	20	7.0	382	19.1	9.5%	20	7.0	396	19.8	6.2%
TETRACHLORO ETHENE	PID	13.2	20	15.8	249	12.5	5.7%	20	15.8	258	12.9	2.3%
1,1,1-TRICHLORO ETHANE	HALL	218	. 20	9.7	4,624	231	5.9%	20	9.7	4,087	204	6.4%
1,1,2-TRICHLORO ETHANE	HALL	223	20	15.0	5,099	255	14.4%	20	15.0	4,277	214	4.0%
TRICHLORO ETHENE	PID	15.3	20	11.5	277	13.9	9.5%	20	11.6	287	14.4	6.2%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	90.5	20	5.7	1,973	98.7	9.0%	20	5.7	2,074	103.7	14.6%
BENZENE	PID	26.8	20	10.4	499	25.0	6.9%	20	10.4	515	25.8	3.9%
ETHYLBENZENE	PID	29.4	20	17.9	525	26.3	10.7%	. 20	17.9	579	29.0	1.5%
TOLUENE	PID	27.3	20	14.2	494	24.7	9.5%	20	14.2	51 1	25.6	6.4%
m&p-XYLENES	PID	30.7	40	18.1	1,126	28.2	8.3%	40	18.1	1,149	28.7	6.4%
o-XYLENE	PID	27.9	20	19.2	490	24.5	12.2%	20	19.2	505	25.3	9.5%
1,4 DIFLUORO BENZENE	PID	11.5	20	10.8	209	10.5	9.1%	20	10.8	215	10.8	6.5%
CHLOROBENZENE	PID	26.1	20	17.7	482	24.1	7.7%	20	17.8	469	23.5	10.2%
4 BROMOFLUORO BENZENE	PID	42.7	20	21.0	810	40.5	5.2%	20	21.0	837	41.9	2.0%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

HP Labs

QA/QC - CALIBRATION DATA

DATE: 01/17/00		Sl	JPPLY SOU	RCF: (CAL	IBRATION VER	RIFICATION	OF EST)
HP Labs Project #2K0117W1		AC	CCUSTANDA	ARD LOT #	4 A8090246	WI ICATION	Dr E31)
WINNEBAGO 1	•				ZU GC14A FR	ONT	
					TINUING STAN		
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	CF	%DIFF
CARBON TETRACHLORIDE	HALL	174	5.0	10.3	1,033	207	18.9%
1,1-DICHLORO ETHANE	HALL	219	5.0	7.7	1,136	227	3.7%
1,2-DICHLORO ETHANE	HALL	290	5.0	10.4	1,955	391	34.7%
1,1-DICHLORO ETHENE	PID	8.90	5.0	5.9	38	7.64	14.2%
CIS-1,2-DICHLORO ETHENE	PID	12.2	5.0	8.6	60	12.0	1.6%
TRANS-1,2-DICHLORO ETHENE	PID	21.1	5.0	7.0	92	18.5	12.4%
TETRACHLORO ETHENE	PID	13.2	5.0	15.8	79	15.8	19.8%
1,1,1-TRICHLORO ETHANE	HALL	218	5.0	9.7	1,215	243	11.3%
1,1,2-TRICHLORO ETHANE	HALL	223	5.0	15.1	1,329	266	19.3%
TRICHLORO ETHENE	PID	15.3	5.0	11.6	78	15.7	2.4%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	. HALL	90.5	5.0	5.7	481	96.2	6.3%
BENZENE	PID	26.8	5.0	10.4	142	28.4	6.0%
ETHYLBENZENE	PID	29.4	5.0	17.9	137	27.4	6.8%
TOLUENE	PID	27.3	5.0	14.3	151	30.2	10.6%
m&p-XYLENES	PID	30.7	10	18.1	335	33.5	9.1%
O-XYLENE	PID	27.9	5.0	19.3	149	29.8	6.8%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

QA/QC - CALIBRATION DATA

DATE: 01/17/00			SUPPLY SO	OURCE:	CONTINUI	NG CALIBR	ATION (OF	PENING) A	CCUST	ANDARD LO	T # A90501	254
HP Labs Project #2K0117W1			SUPPLY SO	DURCE:	QUALITY C	CONTROL (CLOSING)	ACCUSTA	NDARD	LOT # A712	20170	.04
WINNEBAGO 1					HMADZU GO						20170	
				OPE	NING STAN	DARD			CLC	SING STAN	IDARD	
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	CF	%DIFF	MASS	RT	AREA	CF	%DIFF
CARBON TETRACHLORIDE	HALL	174	20	10.3	3,732	187	7.4%	20	10.2	3,762	188	8.2%
1,1-DICHLORO ETHANE	HALL	219	20	7.8	4,932	247	12.6%	20	7.7	4,393	220	0.3%
1,2-DICHLORO ETHANE	HALL	290	20	10.4	6,469	323	11.4%	20	10.4	6,518	326	12.3%
1,1-DICHLORO ETHENE	PID	8.90	20	5.9	173	8.65	2.8%	20	5.8	147	7.35	17.4%
CIS-1,2-DICHLORO ETHENE	PID	12.2	20	8.6	240	12.0	1.6%	20	8.6	215	10.8	11.9%
TRANS-1,2-DICHLORO ETHENE	PID	21.1	20	7.0	412	20.6	2.4%	20	7.0	363	18.2	14.0%
TETRACHLORO ETHENE	PID	13.2	20	15.9	263	13.2	0.4%	20	15.8	236	11.8	10.6%
1,1,1-TRICHLORO ETHANE	HALL	218	20	9.8	4,786	239	9.6%	20	9.7	4,638	232	6.2%
1,1,2-TRICHLORO ETHANE	HALL	223	.20	15.1	5,010	251	12.4%	20	15.0	4,739	237	6.4%
TRICHLORO ETHENE	PID	15.3	20	11.6	294	14.7	3.9%	20	11.5	266	13.3	13.1%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	90.5	20	5.7	1,942	97.1	7.3%	20	5.7	1,961	98.1	8.3%
BENZENE	PID	26.8	20	10.4	525	26.3	2.1%	20	10.4	472	23.6	11.9%
ETHYLBENZENE	PID	29.4	20	17.9	542	27.1	7.8%	20	17.8	470	23.5	20.0%
TOLUENE	PID	27.3	20	14.3	526	26.3	3.7%	20	14.2	472	23.6	13.6%
m&p-XYLENES	PID	30.7	40	18.1	1,185	29.6	3.5%	40	18.0	1,049	26.2	14.6%
o-XYLENE	PID	27.9	20	19.3	509	25.5	8.8%	20	19.2	462	23.1	17.2%
1,4 DIFLUORO BENZENE	PID	11.5	20	10.9	220	11.0	4.3%	20	10.8	198	9.9	13.9%
CHLOROBENZENE	PID	26.1	20	17.8	519	26.0	0.6%	20	17.7	494	24.7	5.4%
4 BROMOFLUORO BENZENE	PID	42.7	20	21.1	850	42.5	0.5%	20	21.0	772	38.6	9.6%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

HP Labs

QA/QC - CALIBRATION DATA

DATE: 01/23/00

HP Labs Project #2K0123W1

WINNEBAGO 1

SUPPLY SOURCE: (CALIBRATION VERIFICATION OF EST)

ACCUSTANDARD LOT # A8090246

INSTRUMENT: SHIMADZU GC14A FRONT

CONTINUING STANDARD

COMPOUND

DETECTOR AVERE MASS PT AREA OF AVERE

				CONT	FINUING STAN	DARD	
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	CF	%DIF
CARBON TETRACHLORIDE	HALL	174	5.0	10.2	930	186	7.0%
1,1-DICHLORO ETHANE	HALL	219	5.0	7.7	965	193	11.9%
1,2-DICHLORO ETHANE	HALL	290	5.0	10.4	1,785	357	23.0%
1,1-DICHLORO ETHENE	PID	8.90	5.0	5.9	37	7.42	16.6%
CIS-1,2-DICHLORO ETHENE	PID	12.2	5.0	8.6	59	11.8	3.4%
TRANS-1,2-DICHLORO ETHENE	PID	21.1	5.0	7.0	95	18.9	10.4%
TETRACHLORO ETHENE	PID	13.2	5.0	15.8	61	12.2	7.3%
1,1,1-TRICHLORO ETHANE	HALL	218	5.0	9.7	1,192	238	9.2%
1,1,2-TRICHLORO ETHANE	HALL	223	5.0	15.0	1,335	267	19.8%
TRICHLORO ETHENE	PID	15.3	5.0	11.6	67	13.5	11.9%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	90.5	5.0	5.7	405	81.0	10.5%
BENZENE	PID	26.8	5.0	10.4	120	24.0	10.4%
ETHYLBENZENE	PID	29.4	5.0	17.9	122	24.4	17.0%
TOLUENE	PID	27.3	5.0	14.3	127	25.4	7.0%
m&p-XYLENES	PID	30.7	10	18.1	282	28.2	8.1%
o-XYLENE	PID	27.9	5.0	19.2	151	30.2	8.2%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

IP Laus

QA/QC - CALIBRATION DATA

DATE: 01/23/00

HP Labs Project #2K0123W1

WINNEBAGO 1

SUPPLY SOURCE: CONTINUING CALIBRATION (OPENING) ACCUSTANDARD LOT # A9050254

SUPPLY SOURCE: QUALITY CONTROL (CLOSING) ACCUSTANDARD LOT # A7120170

INSTRUMENT: SHIMADZU GC14A FRONT

COMPOUND

COMPOUND

DETECTOR AVERE MASS BY AREA CE WINES AND AREA OF AREA

				OPE	NING STAN	DARD			CLO	SING STAN	DARD	
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	CF	%DIFF	MASS	RT	AREA	CF	%DIF
CARBON TETRACHLORIDE	HALL	174	20	10.2	3,558	178	2.4%	20	10.2	3,288	164	5.49
1,1-DICHLORO ETHANE	HALL	219	20	7.7	4,172	209	4.8%	20	7.6	3,865	193	11.8%
1,2-DICHLORO ETHANE	HALL	290	20	10.3	5,172	259	10.9%	20	10.3	5,475	274	5.7%
1,1-DICHLORO ETHENE	PID	8.90	20	5.8	156	7.80	12.4%	20	5.8	161	8.05	9.6%
CIS-1,2-DICHLORO ETHENE	PID	12.2	20	8.6	235	11.8	3.7%	20	8.6	220	11.0	9.8%
TRANS-1,2-DICHLORO ETHENE	PID	21.1	20	7.0	374	18.7	11.4%	20	6.9	361	18.1	14.5%
TETRACHLORO ETHENE	PID	13.2	20	15.8	275	13.8	4.2%	20	15.8	293	14.7	11.0%
1,1,1-TRICHLORO ETHANE	HALL	218	20	9.7	4,665	233	6.8%	20	9.7	4,096	205	6.2%
1,1,2-TRICHLORO ETHANE	HALL	223	20	15.0	4,783	239	7.3%	20	15.0	4.870	244	9.3%
TRICHLORO ETHENE	PID	15.3	20	11.5	294	14.7	3.9%	20	11.5	286	14.3	6.5%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	90.5	20	5.7	1,734	86.7	4.2%	20	5.6	1,556	77.8	14.0%
BENZENE	PID	26.8	20	10.4	518	25.9	3.4%	20	10.3	470	23.5	12.3%
ETHYLBENZENE	PID	29.4	20	17.8	564	28.2	4.1%	20	17.8	501	25.1	14.8%
TOLUENE	PID	27.3	20	14.2	548	27.4	0.4%	20	14.2	593	29.7	8.6%
m&p-XYLENES	PID	30.7	40	18.0	1,238	31.0	0.8%	40	18.0	1,059	26.5	13.8%
o-XYLENE	PID	27.9	20	19.2	548	27.4	1.8%	20	19.2	600	30.0	7.5%
1,4 DIFLUORO BENZENE	PID	11.5	20	10.8	223	11.2	3.0%	20	10.8	219	11.0	4.8%
CHLOROBENZENE	PID	26.1	20	17.7	545	27.3	4.4%	20	17.7	564	28.2	8.0%
4 BROMOFLUORO BENZENE	PID	42.7	20	20.9	905	45.3	6.0%	20	20.9	808	40.4	5.4%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

QA/QC - CALIBRATION DATA

DATE: 01/22/00		SI	UPPLY SOU	RCE: (CAL	IBRATION VER	RIFICATION						
HP Labs Project #2K0122W1		A	CCUSTANDA	ARD LOT #	A7120170	10/11/014)						
WINNEBAGO 1					ZU GC14A FR	ONT						
			CONTINUING STANDARD									
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	CF	%DIFF					
CARBON TETRACHLORIDE	HALL	174	20	10.2	3,755	188	8.0%					
1,1-DICHLORO ETHANE	HALL	219	20	7.7	4,302	215	1.8%					
1,2-DICHLORO ETHANE	HALL	290	20	10.4	6,431	322	10.8%					
1,1-DICHLORO ETHENE	PID	8.90	20	5.8	150	7.50	15.7%					
CIS-1,2-DICHLORO ETHENE	PID	12.2	20	8.6	213	10.7	12.7%					
TRANS-1,2-DICHLORO ETHENE	PID	21.1	20	7.0	355	17.8	15.9%					
TETRACHLORO ETHENE	PID	13.2	20	15.8	270	13.5	2.3%					
1,1,1-TRICHLORO ETHANE	HALL	218	20	9.7	4,545	227	4.1%					
1,1,2-TRICHLORO ETHANE	HALL	223	20	15.0	4,842	242	8.7%					
TRICHLORO ETHENE	PID	15.3	20	11.5	312	15.6	2.0%					
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	. 90.5	20	5.7	1,506	75.3	. 16.8%					
BENZENE	PID	26.8	20	10.4	453	22.7	15.5%					
ETHYLBENZENE	PID	29.4	20	17.9	529	26.5	10.0%					
TOLUENE	PID	27.3	20	14.2	538	26.9	1.5%					
m&p-XYLENES	PID	30.7	40	18.0	1,084	27.1	11.7%					
o-XYLENE	PID	27.9	20	19.2	552	27.6	1.1%					
1,4 DIFLUORO BENZENE	PID	11.5	20	10.8	203	10.2	11.7%					
CHLOROBENZENE	PID	26.1	20	17.7	530	26.5	1.5%					
4 BROMOFLUORO BENZENE	PID	42.7	20	21.0	818	40.9	4.2%					

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

ANALYSES PERFORMED BY: ALLEN GLOVER

DATA REVIEWED BY: JAMES E. PICKER

IP Labs

QA/QC - CALIBRATION DATA

DATE: 01/22/00			SUPPLY SO	OURCE:	CONTINUI	NG CALIBR	ATION (OF	PENING) A	CCUSTA	MOARDIO	T # 400500	05.4
HP Labs Project #2K0122W1			SUPPLY SO	DURCE:	QUALITY C	ONTROL (CLOSING)	ACCUSTA	NDARD	I OT # 4712	1 # M30302 0170	.54
WINNEBAGO 1			INSTRUME	NT: SH	HIMADZU GO	14A FRON	iT	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	110,1110	LOTHATIZ	0170	
				OPE	NING STAN	DARD			CLO	SING STAN	DARD	
COMPOUND	DETECTOR	AVE RF	MASS	RT	AREA	CF	%DIFF	MASS	RT	AREA	CF	%DIFF
CARBON TETRACHLORIDE	HALL	174	20	10.2	3,080	154	11.4%	20	10.2	2,854	143	17.9%
1,1-DICHLORO ETHANE	HALL	219	20	7.7	3,810	191	13.1%	20	7.7	3.950	198	9.9%
1,2-DICHLORO ETHANE	HALL	290	20	10.3	5,041	252	13.2%	20	10.4	4,811	241	17.1%
1,1-DICHLORO ETHENE	PID	8.90	20	5.8	167	8.35	6.2%	20	5.9	150	7.50	15.7%
CIS-1,2-DICHLORO ETHENE	PID	12.2	20	8.6	222	11.1	9.0%	20	8.6	201	10.1	17.6%
TRANS-1,2-DICHLORO ETHENE	PID	21.1	20	7.0	395	19.8	6.4%	20	7.0	348	17.4	17.5%
TETRACHLORO ETHENE	PID	13.2	20	15.8	269	13.5	1.9%	20	15.8	235	11.8	11.0%
1,1,1-TRICHLORO ETHANE	HALL	218	20	9.7	3,766	188	13.7%	20	9.7	3,903	195	10.6%
1,1,2-TRICHLORO ETHANE	HALL	223	20	15.0	4,198	210	5.8%	20	15.0	4,270	214	4.2%
TRICHLORO ETHENE	PID	15.3	20	11.5	301	15.1	1.6%	20	11.6	247	12.4	19.3%
1,1,2-TRICHLOROTRIFLUOROETHANE (FR113)	HALL	90.5	20	5.7	1,582	79.1	12.6%	20	5.7	1,539	77.0	15.0%
BENZENE	PID	26.8	20	10.4	482	24.1	10.1%	20	10.4	432	21.6	19.4%
ETHYLBENZENE	PID	29.4	20	17.8	507	25.4	13.8%	20	17.8	476	23.8	19.0%
TOLUENE	PID	27.3	20	14.2	524	26.2	4.0%	20	14.2	445	22.3	18.5%
m&p-XYLENES	. PID	30.7	40	18.0	1,047	26.2	14.7%	40	18.0	1,029	25.7	16.2%
o-XYLENE	PID	27.9	20	19.2	481	24.1	13.8%	20	19.2	468	23.4	16.1%
1,4 DIFLUORO BENZENE	PID	11.5	20	10.8	222	11.1	3.5%	20	10.8	186	9.3	19.1%
CHLOROBENZENE	PID	26.1	20	17.7	506	25.3	3.1%	20	17.7	447	22.4	14.4%
4 BROMOFLUORO BENZENE	PID	42.7	20	20.9	800	40.0	6.3%	20	21.0	752	37.6	11.9%

ANALYSES PERFORMED ON-SITE IN DOHS CERTIFIED MOBILE LABORATORY (CERT #1745)

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl ₄	Freon 113	TCE	1,1-DCE	Other Compounds
25	20	10/19/98	VPSV-523	ND	ND	ND	ND	ND
25	20	3/8/99	VPSV-641	ND	ND	ND	ND	ND
25	20	10/4/99	VPSV-749	ND	ND	ND	ND	ND
25	20	1/17/00	VPSV-918	ND	ND	ND	ND	ND
25	40	10/19/98	VPSV-524	ND	ND	ND	ND	ND
25	40	3/8/99	VPSV-642	ND	ND	ND	ND	ND
25	40	10/4/99	VPSV-750	ND	ND	ND	ND	ND
25	40	1/17/00	VPSV-919	ND	ND	ND	ND	ND
25	60	10/19/98	NS	Р	Р	Р	Р	P
25	60	3/8/99	NS	Р	Р	Р	P	P
25	60	10/4/99	NS	Р	P	Р	P	P
25	60	1/17/00	NS	Р	Р	Р	P	P
25	85	10/19/98	VPSV-525	83	ND	ND	ND	ND
25	85	3/8/99	VPSV-643	14	ND	ND	ND	ND
25	85	10/4/99	NS	Р	Р	Р	Р	Р
25	85	1/17/00	NS	Р	Р	Р	Р	Р
25	100	10/19/98	NS	Р	Р	Р	P	P
25	100	3/8/99	NS	Р	Р	Р	Р	P
25	100	10/4/99	VPSV-751	ND	ND	ND	ND	ND
25	100	1/17/00	NS	Р	Р	Р	Р	Р
25	120	10/19/98	VPSV-526	119	ND	ND	ND	ND
25	120	3/8/99	VPSV-644	ND	ND	ND	ND	ND
25	120	10/4/99	VPSV-752	ND	ND	ND	ND	ND
25	120	1/17/00	NS	Р	Р	P	P	P
25	145	10/19/98	VPSV-527	286 J	152 J	ND	ND	ND
25	145	10/19/98	VPSV-528(DUP)	285	147	ND	ND	ND
25	145	3/8/99	VPSV-645	4.1	ND	5.5	ND	ND
25	145	3/8/99	VPSV-646(DUP)	3.9	ND	5.6	ND	ND
25	145	10/4/99	VPSV-753	ND	ND	ND	ND	ND

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Other Compounds
25	145	10/4/99	VPSV-754(DUP)	ND	ND	ND	ND	ND
25	145	1/17/00	VPSV-920	1.0	ND	ND	ND	ND
25	165	10/19/98	VPSV-529	217 J	233 J	ND	ND	ND
25	165	3/8/99	NS	W	W	W	W	W
25	165	10/4/99	NS	Р	Р	Р	Р	Р
25	165	1/17/00	NS	Р	Р	Р	Р	Р
25	180	10/19/98	VPSV-530	118	133	ND	ND	ND
25	180	3/8/99	VPSV-647	ND	ND	1.1	ND	ND
25	180	10/4/99	VPSV-755	ND	2.2	ND	ND	ND
25	180	1/17/00	VPSV-921	1.0	1.5	ND	ND	ND
25	190	10/19/98	VPSV-531	124	71	1.6	ND	ND
25	190	3/8/99	VPSV-648	ND	ND	ND	ND	ND
25	190	10/4/99	VPSV-756	ND	ND	ND	ND	ND
25	190	1/17/00	VPSV-922	1.2	ND	ND	ND	ND
25	190	1/17/00	VPSV-923(DUP)	1.1	ND	ND	ND	ND
26	20	10/19/98	NS	Р	Р	Р	Р	Р
26	20	3/8/99	NS	Р	Р	Р	Р	Р
26	20	10/4/99	NS	Р	P	Р	Р	Р
26	20	1/17/00	NS	Р	Р	Р	Р	Р
26	35	10/19/98	VPSV-532	ND	ND	ND	ND	ND
26	35	3/8/99	VPSV-649	ND	ND	ND	ND	ND
26	35	10/4/99	VPSV-757	10	ND	1.5	ND	ND
26	35	1/17/00	VPSV-924	ND	ND	ND	ND	ND
26	55	10/19/98	VPSV-533	ND	ND	ND	3.9	ND
26	55	10/19/98	VPSV-534(DUP)	ND	ND	ND	4.2	ND
26	55	3/8/99	NS	Р	Р	Р	Р	Р
26	55	10/4/99	NS	Р	Р	Р	Р	Р
26	55	1/17/00	NS	Р	Р	Р	Р	Р

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Other Compounds
26	80	10/19/98	VPSV-535	74	ND	4.4	6.7	ND
26	80	3/8/99	NS	W	W	W	W	W
26	80	10/4/99	NS	Р	P	Р	Р	Р
26	80	1/17/00	NS	Р	Р	Р	Р	Р
26	100	10/19/98	NS	Р	Р	Р	Р	Р
26	100	3/8/99	NS	Р	P	Р	Р	Р
26	100	10/4/99	NS	Р	Р	Р	P	Р
26	100	1/17/00	NS	Р	Р	Р	Р	Р
26	115	10/19/98	VPSV-536	153 J	ND	1.2	3.0	ND
26	115	3/8/99	VPSV-650	50	ND	ND	ND	ND
26	115	10/4/99	VPSV-758	1.7	ND	ND	ND	ND
26	115	1/17/00	VPSV-925	6.9	ND	ND	ND	ND
26	140	10/19/98	VPSV-537	167 J	7.9	ND	1.6	ND
26	140	3/8/99	VPSV-651	2.5	ND	ND	ND	ND
26	140	3/8/99	VPSV-652(DUP)	2.7	ND	ND	ND	ND
26	140	10/4/99	VPSV-759	5.4	ND	1.9	ND	ND
26	140	1/17/00	VPSV-926	11	1.2	1.7	1.1	1.5 (Chloroform)
26	160	10/20/98	VPSV-538	81	ND	ND	ND	ND
26	160	3/8/99	VPSV-653	2.8	ND	ND	ND	ND
26	160	10/5/99	VPSV-761	5.0	2.2	1.8	ND	ND
26	160	1/17/00	VPSV-927	11	2.9	1.8	1.3	1.3 (Chloroform)
26	180	10/20/98	VPSV-539	72	ND	ND	ND	ND
26	180	3/9/99	VPSV-654	ND	ND	2.6	ND	ND
26	180	10/5/99	VPSV-762	2.9	3.0	6.5	ND	ND
26	180	1/17/00	VPSV-928	5.4	3.5	5.7	ND	ND
26	180	1/17/00	VPSV-929(DUP)	4.9	3.6	5.5	ND	ND
26	195	10/20/98	VPSV-540	83	ND	1.4	ND	ND
26	195	10/20/98	VPSV-541(DUP)	95	ND	1.3	ND	ND
26	195	3/9/99	VPSV-655	ND	ND	1.7	ND	ND

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Other Compounds
26	195	10/5/99	NS	Р	Р	Р	Р	Р
26	195	1/17/00	NS	Р	Р	Р	Р	Р
27	20	10/20/98	VPSV-542	ND	ND	ND	ND	ND
27	20	3/9/99	VPSV-656	ND	ND	ND	ND	ND
27	20	10/5/99	VPSV-763	ND	ND	ND	ND	ND
27	20	1/18/00	VPSV-930	ND	ND	ND	ND	ND
27	35	10/20/98	NS	W	W	l w	W	W
27	35	3/9/99	NS	W	l w	W	W	W
27	35	10/5/99	NS	W	l w	W	W	W
27	35	1/18/00	VPSV-931	ND	ND	ND	ND	ND
27	60	10/20/98	VPSV-543	ND	49	ND	ND	ND
27	60	3/9/99	VPSV-657	ND	5.1	ND	ND	ND
27	60	3/9/99	VPSV-658(DUP)	ND	5.4	. ND	ND	ND
27	60	10/5/99	VPSV-764	ND	2.5	ND	ND	ND
27	60	1/18/00	VPSV-932	ND	3.4	ND	ND	ND
27	85	10/20/98	VPSV-544	7.4	61	ND	ND	ND
27	85	3/9/99	VPSV-659	ND	ND	ND	ND	ND
27	85	10/5/99	VPSV-765	ND	ND	ND	ND	ND
27	85	10/5/99	VPSV-766(DUP)	ND	ND	ND	ND	ND
27	85	1/18/00	VPSV-933	3.0	2.6	ND	ND	ND
27	100	10/20/98	VPSV-545	193 J	188 J	ND	ND	ND
27	100	10/20/98	VPSV-546(DUP)	203	169	ND	ND	ND
27	100	3/9/99	VPSV-660	11	ND	ND	ND	ND
27	100	10/5/99	VPSV-767	5.2	ND	ND	ND	ND
27	100	1/18/00	VPSV-934	13	1.4	ND	ND	ND
27	100	1/18/00	VPSV-935(DUP)	15	1.7	ND	ND	ND
27	120	10/20/98	VPSV-547	110	215	ND	ND	ND
27	120	3/9/99	VPSV-661	ND	ND	ND -	ND	ND
27	120	10/5/99	VPSV-768	1.3	ND	ND	ND	ND

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Other Compounds
27	120	1/18/00	VPSV-936	1.6	ND	ND	ND	ND
27	140	10/20/98	VPSV-548	161	268	1.2	ND	ND ·
27	140	3/9/99	VPSV-662	60	19	ND	ND	ND
27	140	10/5/99	VPSV-769	6.2	1.2	ND	ND	ND
27	140	1/18/00	VPSV-937	10	2.1	ND	ND	ND
27	160	10/20/98	VPSV-549	189	212	ND	ND	ND
27	160	3/9/99	VPSV-663	ND	ND	ND	ND	ND
27	160	3/9/99	VPSV-664(DUP)	ND	ND	ND	ND	ND
27	160	10/5/99	VPSV-770	ND.	ND	ND	ND	ND
27	160	1/18/00	VPSV-938	2.5	ND	ND	ND	ND
27	180	10/20/98	VPSV-550	155	265	ND	ND	ND
27	180	3/9/99	NS	Р	Р	Р	Р	P
27	180	10/5/99	VPSV-771	12	2.1	4.0	ND	ND
27	180	10/5/99	VPSV-772(DUP)	12	1.9	4.5	ND	ND
27	180	1/18/00	VPSV-939	27	2.8	2.6	ND	ND
27	205	10/20/98	VPSV-551	413 J	133	ND	ND	ND
27	205	10/20/98	VPSV-552(DUP)	446	130	ND	ND	ND
27	205	3/9/99	VPSV-665	9.5	ND	2.1	ND	ND
27	205	10/5/99	VPSV-773	4.8	2.2	ND	ND	ND
27	205	1/18/00	VPSV-940	11	5.4	2.9	ND	1.2 (Freon 11)
27	205	1/18/00	VPSV941(DUP)	9.2	5.3	2.2	ND	1.2 (Freon 11)
28	20	10/21/98	VPSV-565	ND	ND	ND	ND	ND
28	20	3/11/99	VPSV-675	ND	ND	ND	ND	ND
28	20	3/11/99	VPSV-676(DUP)	ND	ND	ND	ND	ND
28	20	10/6/99	VPSV-783 ´	ND	ND	ND	ND	ND
28	20	10/6/99	VPSV-784(DUP)	ND	ND	ND	ND	ND
28	20	1/18/00	VPSV-942	ND	ND	ND	ND	ND
28	45	10/21/98	VPSV-566	ND	ND	ND	ND	ND
28	45	3/11/99	NS	P	Р	Р	Р	P

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl ₄	Freon 113	TCE	1,1-DCE	Other Compounds
28	45	10/6/99	NS	Р	Р	Р	Р	Р
28	45	1/18/00	NS	Р	Р	Р	Р	Р
28	65	10/21/98	NS	Р	Р	Р	Р	Р
28	65	3/11/99	NS	Р	Р	Р	Р	Р
28	65	10/6/99	NS	Р	Р	Р	Р	Р
28	65	1/18/00	NS	P	Р	Р	Р	Р
28	80	10/21/98	VPSV-567	22	ND	ND	ND	ND
28	80	3/11/99	VPSV-677	ND	ND	ND	ND	ND
28	80	10/6/99	VPSV-785	ND	ND	ND	ND	ND
28	80	1/18/00	VPSV-943	ND	ND	ND	ND	ND
28	105	10/21/98	VPSV-568	210 J	127	ND	ND	ND
28	105	3/11/99	VPSV-678	ND	ND	ND	ND	ND
28	105	10/6/99	VPSV-786	ND	ND	ND	ND	ND
28	105	1/18/00	VPSV-944	1.1	ND	ND	ND	ND
28	120	10/21/98	VPSV-569	438 J	429 J	ND	ND	ND
28	120	10/21/98	VPSV-570(DUP)	451 J	403 J	ND	ND	ND
28	120	3/11/99	NS	Р	Р	Р	Р	Р
28	120	10/6/99	NS	Р	Р	Р	Р	Р
28	120	1/18/00	NS	Р	Р	Р	Р	Р
28	140	10/21/98	NS	Р	Р	Р	Р	Р
28	140	3/11/99	NS	Р	Р	Р	Р	Р
28	140	10/6/99	NS	Р	P	Р	Р	Р
28	140	1/18/00	NS	Р	P	Р	Р	Р
. 28	160	10/21/98	NS	Р	Р	Р	Р	Р
28	160	3/11/99	NS	Р	Р	Р	Р	Р
28	160	10/6/99	NS	Р	Р	P	Р	Р
28	160	1/18/00	NS	Р	Р	Р	Р	Р
32	25	10/26/98	VPSV-597	ND	ND	ND	ND	ND
32	25	3/16/99	VPSV-711	ND	ND	ND	ND	ND

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Other Compounds
32	25	10/9/99	VPSV-812	ND	ND	ND	ND	ND
32	25	1/21/00	VPSV-984	ND	ND	ND	ND	ND
32	40	10/26/98	VPSV-598	ND	ND	ND	ND	ND
32	40	3/16/99	VPSV-712	ND	ND	ND	ND	ND
32	40	3/16/99	VPSV-713(DUP)	ND	ND	ND	ND	ND
32	40	10/9/99	VPSV-813	ND	ND	ND	ND	ND
32	40	10/9/99	VPSV-814(DUP)	ND	ND	ND	ND	ND
32	40	1/21/00	VPSV-985	ND	ND	ND	ND	ND
32	55	10/26/98	VPSV-599	ND	ND	ND	ND	ND
32	55	10/26/98	VPSV-600(DUP)	ND	ND	ND	ND	ND
32	55	3/16/99	VPSV-714	ND	- ND	ND	ND	ND
32	55	10/9/99	VPSV-815	ND	ND	ND	ND	ND
32	55	1/21/00	VPSV-986	ND	ND	ND	ND	ND
32	70	10/26/98	VPSV-601	ND	ND	ND	ND	ND
32	70	3/16/99	VPSV-715	ND	ND	ND	ND	ND
32	70	10/9/99	VPSV-816	ND	3.9	ND	ND	ND
32	70	1/21/00	VPSV-987	ND	2.7	ND	ND	ND
32	90	10/26/98	VPSV-602	ND	ND	ND	ND	ND
32	90	3/16/99	VPSV-716	ND	ND	ND	ND	ND
32	90	10/9/99	VPSV-817	ND	ND	ND	ND	ND
32	90	1/21/00	VPSV-988	ND	ND	ND	ND	ND
32	90	1/21/00	VPSV-989(DUP)	ND	ND	ND	ND	ND
32	115	10/26/98	NS	Р	Р	Р	Р	Р
32	115	3/16/99	. NS	Р	Р	Р	Р	P
32	115	10/9/99	NS	P	Р	· P	Р	P
32	115	1/21/00	NS	P	P	Р	Р	P
32	135	10/26/98	VPSV-603	ND	ND	ND	ND	ND
32	135	3/16/99	NS	Р	Р	Р	P	P
32	135	10/9/99	NS	Р	P	P	P	P

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

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Soil Vapor Well	Depth		Sample					Other
Number	(ft bgs)	Date	Number	CCI ₄	Freon 113	TCE	1,1-DCE	Compounds
32	135	1/21/00	NS	P	Р	Р	Р	Р
32	155	10/26/98	VPSV-604	14	193 J	ND	ND	ND
32	155	3/16/99	VPSV-717	6.8	259	ND	ND	ND
32	155	3/16/99	VPSV-718(DUP)	7.5	257	ND	ND	ND
32	155	10/9/99	VPSV-818	28	78	ND	ND	ND
32	155	1/21/00	VPSV-990	22	51	ND	ND	ND
32	180	10/26/98	VPSV-605	110	144	4.9	ND	ND
32	180	10/26/98	VPSV-606(DUP)	125	138	6.4	ND	ND
32	180	3/16/99	VPSV-719	ND	ND	2.1	ND	ND
32	180	10/9/99	VPSV-819	1.6	ND	ND	ND	ND
32	180	10/9/99	VPSV-820(DUP)	1.7	ND	ND	ND	ND
32	180	1/21/00	VPSV-991	1.6	ND	1.0	ND	ND
32	195	10/26/98	VPSV-607	88	193 J	3.2	ND	ND
32	195	3/16/99	VPSV-720	3.5	ND	8.8	ND	ND
32	195	10/9/99	VPSV-821	ND	ND	ND	ND	1.5 (Chloroform)
32	195	1/21/00	VPSV-992	ND	ND	ND	ND	ND
33	20	10/21/98	VPSV-553	ND	ND	ND	ND	ND
33	20	3/11/99	VPSV-666	ND	ND	ND	ND	ND
33	20	10/6/99	VPSV-774	ND	2.3	ND	ND	ND
33	20	1/19/00	VPSV-945	ND	4.2	ND	ND	ND
33	40	10/21/98	VPSV-554	12	87	6.3	25	ND.
33	40	3/11/99	VPSV-667	7.1	102	5.4	21	ND
33	40	10/6/99	VPSV-775	3.7	67	8.9	47	ND
33	40	1/19/00	VPSV-946	6.1	86	7.7	38	1.0 (1,1,1-TCA)
33	40	1/19/00	VPSV-947(DUP)	6.0	92	6.6	39	1.1 (1,1,1-TCA)
33	60	10/21/98	VPSV-555	89	1.3	4.3	12	ND
33	60	3/11/99	VPSV-668	11	ND	2.5	8.8	ND
33	60	10/6/99	VPSV-776	6.6	2.4	1.7	4.8	ND
33	60	1/19/00	VPSV-948	14	4.1	2.1	5.9	ND

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

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Soil Vapor Well	Depth	_	Sample					Other
Number	(ft bgs)	Date	Number	CCI ₄	Freon 113	TCE	1,1-DCE	Compounds
33	85	10/21/98	VPSV-556	140	ND	2.8	8.3	ND
33	85	3/11/99	VPSV-669	44	ND	1.5	5.6	ND
33	85	3/11/99	VPSV-670(DUP)	40	ND	1.1	5.1	ND
33	85	10/6/99	VPSV-777	19	4.5	ND	3.3	ND
33	85	10/6/99	VPSV-778(DUP)	22	4.7	ND	3.3	ND
33	85	1/19/00	VPSV-949	33	7.0	ND	4.7	ND
33	105	10/21/98	VPSV-557	191 J	ND	2.4	6.8	ND
. 33	105	10/21/98	VPSV-558(DUP)	204	ND	2.5	7.4	ND
33	105	3/11/99	VPSV-671	32	ND	ND	ND	ND
33	105	10/6/99	VPSV-779	38	13	ND	4.4	ND
33	105	1/19/00	VPSV-950	69	18	ND	4.3	ND .
33	120	10/21/98	VPSV-559	141	ND	2.2	6.4	ND
33	120	3/11/99	VPSV-672	57	ND	ND	3.7	ND
33	120	10/6/99	VPSV-780	64	17	1.1	4.1	ND
33	120	1/19/00	VPSV-951	101	17	ND	6.5	ND
33	140	10/21/98	VPSV-560	179 J	ND	ND	7.9	ND
33	140	3/11/99	VPSV-673	ND	ND	ND	ND	ND
33	140	10/6/99	VPSV-781	8.6	3.3	ND	ND	2.9 (Chloroform)
33	140	1/19/00	VPSV-952	19	6.7	ND	1.5	5.6 (Chloroform)
33	140	1/19/00	VPSV-953(DUP)	17	6.5	ND	1.3	5.4 (Chloroform)
33	160	10/21/98	VPSV-561	94	ND	ND	8.6	ND
33	160	3/11/99	NS	W	l w	W	l w	W
33	160	10/6/99	NS	Р	P	P	P	P
33	160	1/19/00	NS	P	Р	P	Р	Р
33	180	10/21/98	VPSV-562	67	ND	ND	6.8	ND
33	180	3/11/99	NS	W	W	W	W	W
33	180	10/6/99	NS	Р	P	Р	Р	P
33	180	1/19/00	NS	Р	Р	Р	P	Р

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Other Compounds
33	200	10/21/98	VPSV-563	78	ND	1.3	5.9	ND
33	200	10/21/98	VPSV-564(DUP)	-77	ND	1.1	5.8	ND
33	200	3/11/99	VPSV-674	1.3	ND	ND	ND	ND
33	200	10/6/99	VPSV-782	ND	ND	ND	ND	ND
33	200	1/19/00	VPSV-954	1.8	ND	ND	ND	ND
34	20	10/22/98	VPSV-583	ND	ND	ND	ND	ND
34	20	3/12/99	VPSV-691	ND	ND	ND	ND	ND
34	20	10/7/99	VPSV-799	ND	ND	ND	ND	ND
34	20	1/20/00	VPSV-969	ND	ND	ND	ND	ND
34	35	10/22/98	VPSV-584	ND	ND	ND	ND	ND
34	35	3/12/99	VPSV-692	ND	ND	ND	ND	ND
34	35	10/7/99	VPSV-800	ND	ND	ND	ND	ND
34	35	1/20/00	VPSV-970	4.7	ND	ND	ND	ND
34	35	1/20/00	VPSV-971(DUP)	4.5	ND	ND	ND	ND
34	50	10/22/98	VPSV-585	ND	ND	ND	ND	ND
34	50	3/12/99	VPSV-693	ND	ND	ND	ND	ND
34	50	3/12/99	VPSV-694(DUP)	ND	ND	ND	ND	ND
34	50	10/5/99	NS	W	W	W	W	W
34	50	1/20/00	NS	Р	Р	Р	Р	Р
34	65	10/22/98	VPSV-586	4.5	ND	ND	ND	ND
34	65	3/15/99	VPSV-695	ND	ND	ND	ND	ND
34	65	10/8/99	VPSV-801	ND	ND	ND	ND	ND
34	65	10/8/99	VPSV-802(DUP)	ND	ND	ND	ND	ND
34	65	1/20/00	VPSV-972	ND	ND	ND	ND	ND
34	80	10/22/98	VPSV-587	6.1	ND	ND	ND	ND
34	80	10/22/98	VPSV-588(DUP)	6.0	ND	ND	ND	ND
34	80	3/15/99	VPSV-696	ND	ND	ND	ND	ND
34	80	10/8/99	VPSV-803	ND	ND	ND	ND	ND
34	80	1/20/00	VPSV-973	ND	ND	ND	ND	ND

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl ₄	Freon 113	TCE	1,1-DCE	Other Compounds
34	95	10/23/98	VPSV-589	28	ND	ND	ND	ND
34	95	3/15/99	VPSV-697	ND	ND	ND	ND	ND
34	95	10/8/99	VPSV-804	ND	ND	ND	ND	ND
34	95	1/20/00	VPSV-974	ND	ND	ND	ND	ND
34	108	10/23/98	VPSV-590	157 J	62	ND	ND	ND
34	108	3/15/99	VPSV-698	43	ND	ND	ND	ND
34	108	10/8/99	VPSV-805	8.2	ND	ND	ND	ND
34	108	1/20/00	VPSV-975	14	ND	ND	ND	ND
34	118	10/23/98	VPSV-591	154 J	82	ND	ND	ND
34	118	3/15/99	VPSV-699	111	ND	ND	ND	ND
34	118	3/15/99	VPSV-700(DUP)	116	ND	ND	ND	ND
34	118	10/8/99	VPSV-806	52	2.5	ND	1.3	5.1 (Chloroform)
34	118	1/20/00	VPSV-976	53	4.4	ND	1.5	4.0 (Chloroform)
34	118	1/20/00	VPSV-977(DUP)	48	4.2	ND	1.5	3.3 (Chloroform)
35	20	10/22/98	VPSV-571	ND	ND	ND	ND	ND
35	20	3/12/99	VPSV-679	ND	ND	ND	ND	ND
35	20	10/7/99	VPSV-787	ND	ND	ND	ND	ND
35	20	1/20/00	VPSV-960	ND	ND	ND	ND	ND
35	35	10/22/98	VPSV-572	ND	ND	ND	ND	ND
35	35	3/12/99	VPSV-680	ND	ND	ND	ND	ND
35	35	10/7/99	VPSV-788	ND	ND	ND	ND	ND
35	35	1/20/00	VPSV-961	ND	ND	ND	ND	ND
35	50	10/22/98	VPSV-573	ND	ND	ND	ND	ND
35	50	3/12/99	VPSV-681	ND	ND	ND	ND	ND
35	50	3/12/99	VPSV-682(DUP)	ND	ND	ND	ND	ND
35	50	10/7/99	VPSV-789	ND	ND	ND	ND	ND
35	50	10/7/99	VPSV-791(DUP)	ND	ND	ND	ND	ND
35	50	1/20/00	NS `	Р	Р	P	Р	Р

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	COL	F 442	TOF	4.4.005	Other
				CCl₄	Freon 113	TCE	1,1-DCE	Compounds
35	60	10/22/98	VPSV-574	ND	ND	ND	ND	ND
35	60	3/12/99	VPSV-683	ND	ND	ND	ND	ND
35	60	10/7/99	VPSV-790	ND	ND	ND	ND	ND
35	60	1/20/00	VPSV-962	ND	ND	ND	ND	ND
35	80	10/22/98	VPSV-575	18	36	ND	ND	ND
35	80	10/22/98	VPSV-576(DUP)	20	37	ND	ND	ND
35	80	3/12/99	VPSV-684	ND	ND	ND	ND	ND
35	80	10/7/99	VPSV-792	ND	ND	ND	ND	ND
35	80	1/20/00	VPSV-963	ND	ND	ND	ND	ND
35	95	10/22/98	VPSV-577	45	48	ND	ND	ND
35	95	3/12/99	VPSV-685	6.2	4.9	ND	ND	ND
35	95	10/7/99	VPSV-793	1.6	ND	ND	ND	ND
35	95	1/20/00	VPSV-964	1.3	ND	ND	ND	ND
35	95	1/20/00	VPSV-965(DUP)	1.5	ND	ND	ND	ND
35	110	10/22/98	VPSV-578	65	47	ND	ND	ND
35	110	3/12/99	VPSV-686	1.5	ND	ND	ND	ND
35	110	10/7/99	VPSV-794	ND	ND	ND	ND	ND
35	110	1/20/00	VPSV-966	ND	ND	ND	ND	ND
35	125	10/22/98	VPSV-579	74	54	ND	ND	ND
35	125	3/12/99	VPSV-687	1.8	ND	ND	ND	ND
35	125	3/12/99	VPSV-688(DUP)	1.5	ND	ND	ND	ND
35	125	10/7/99	VPSV-795	ND	1.5	ND	ND	ND
35	125	10/7/99	VPSV-796(DUP)	ND	1.5	ND	ND	ND
35	125	1/20/00	VPSV-967	ND	1.4	ND	ND	ND
35	140	10/22/98	VPSV-580	125	64	ND	ND	ND
35	140	3/12/99	VPSV-689	17	4.2	ND	ND	ND
35	140	10/7/99	VPSV-797	13	19	ND	ND	ND
35	140	1/20/00	VPSV-968	8.5	15	2.4	ND	ND

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl₄	Freon 113	TCE	1,1-DCE	Other Compounds
35	155	10/22/98	VPSV-581	59	61	2.4	ND	ND
35	155	10/22/98	VPSV-582(DUP)	63	68	2.8	ND	ND
35	155	3/12/99	VPSV-690	3.2	ND	7.7	ND	ND
35	155	10/7/99	VPSV-798	13	17	9.0	ND	ND
35	155	1/20/00	NS	Р	P	Р	P	P
36	20	10/23/98	NS	Р	Р	Р	Р	Р
36	20	3/17/99	NS	P	P	Р	P	P
36	20	10/8/99	NS	P	P	Р	Р	P
36	20	1/19/00	NS	P	P	Р	P	P
36	35	10/23/98	VPSV-592	9.2	ND	ND	ND	ND
36	35	3/17/99	VPSV-733	149	ND	18	ND	37 (1,1,1-TCA)
36	35	10/8/99	VPSV-807	48	ND	27	2.0	2.6 (Chloroform)
								33 (1,1,1-TCA)
36	35	1/19/00	VPSV-955	89	1.2	23	3.3	2.8 (Chloroform)
								55 (1,1,1-TCA)
36	55	10/23/98	VPSV-593	17	ND	ND	ND	1.1 (Chloroform)
36	55	10/23/98	VPSV-594(DUP)	16	ND	ND	ND	1.1 (Chloroform)
36	55	3/17/99	VPSV-734	191 J	ND	2.9	ND	11 (1,1,1-TCA)
36	55	10/8/99	VPSV-809	153	1.3	61	9.2	1.1 (Chloroform)
								98 (1,1,1-TCA)
36	55	1/19/00	VPSV-956	178	2.3	44	7.0	2.3 (Chloroform)
								106 (1,1,1-TCA)
36	75	10/23/98	VPSV-595	22	31	ND	ND	3.8 (Chloroform)
36	75	3/17/99	VPSV-735	4.7	ND	ND	ND	1.0 (Chloroform)
36	75	3/17/99	VPSV-736(DUP)	4.6	ND	ND	ND	1.2 (Chloroform)
36	75	10/8/99	VPSV-810	30	3.9	2.2	2.3	12 (Chloroform)
								7.6 (1,1,1-TCA)
								1.2 (Freon 11)

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Other Compounds
36	75	1/19/00	VPSV-957	66	4.6	5.0	3.8	11 (Chloroform) 26 (1,1,1-TCA) 1.3 (Freon 11)
36	92	10/23/98	VPSV-596	20	29	ND	ND	4.0 (Chloroform)
36	92	3/17/99	VPSV-737	11	ND	ND	ND	2.1 (Chloroform)
36	92	10/8/99	VPSV-811	20	5.8	1.4	2.6	15 (Chloroform) 1.3 (1,1,1-TCA)
36	92	1/19/00	VPSV-958	24	8.1	ND	2.4	14 (Chloroform) 2.0 (1,1,1-TCA)
36	92	1/19/00	VPSV-959(DUP)	23	8.2	ND	2.6	16 (Chloroform) 1.7 (1,1,1-TCA)
37	25	10/26/98	VPSV-608	ND	ND	ND	ND	ND
37	25	3/16/99	VPSV-721	ND	ND	ND	ND	ND
37	25	10/9/99	VPSV-822	ND	ND	ND	ND	ND
37	25	1/21/00	VPSV-978	ND	ND	ND	ND	ND
37	40	10/26/98	VPSV-609	24	ND	1.2	ND	ND
37	40	3/16/99	VPSV-722	4.3	ND	1.7	ND	ND
37	40	10/9/99	VPSV-823	2.1	ND	ND	ND	ND
37	40	1/21/00	VPSV-979	2.8	1.1	ND	ND	ND
37	60	10/26/98	VPSV-610	43	ND	ND	ND	ND
37	60	3/16/99	VPSV-723	4.0	ND	ND	ND	ND
37	60	3/16/99	VPSV-724(DUP)	3.8	ND	ND	ND	ND
37	60	10/9/99	VPSV-824	ND	ND	ND	ND	ND
37	60	1/21/00	VPSV-980	ND	ND	ND	ND	ND
37	60	10/9/99	VPSV-824	ND	ND	ND	ND	ND
37	80	10/26/98	VPSV-611	64	51	2.3	ND	ND
37	80	10/26/98	VPSV-612(DUP)	60	48	2.4	ND	ND
37	80	3/17/99	VPSV-725	1.1	ND	1.6	ND	ND
37	80	10/9/99	VPSV-825	1.6	ND	ND	ND	ND

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCI ₄	Freon 113	TCE	1,1-DCE	Other Compounds
37	80	10/9/99	VPSV-826(DUP)	1.9	ND	ND	ND	ND
37	80	1/21/00	VPSV-981	1.9	ND	ND	ND	ND
37	100	10/26/98	VPSV-613	62	57	3.5	ND	ND
37	100	3/17/99	VPSV-726	10	10	5.1	ND	ND
37	100	10/9/99	VPSV-827	12	1.8	3.1	ND	1.6 (Chloroform)
37	100	1/21/00	VPSV-982	15	3.0	3.4	1.2	1.7 (Chloroform)
37	100	1/21/00	VPSV-983(DUP)	13	3.1	2.6	1.3	1.5 (Chloroform)
37	120	10/27/98	VPSV-614	32	ND	6.1	ND	ND
37	120	3/17/99	VPSV-727	1.9	ND	2.6	ND.	ND
37	120	10/9/99	VPSV-828	19	12	4.0	2.6	3.6 (Chloroform)
								1.6 (Freon 11)
37	120	1/22/00	VPSV-993	8.8	3.7	3.8	1.7	1.9 (Chloroform)
37	140	10/27/98	VPSV-615	30	37	4.5	ND	ND
37	140	3/17/99	VPSV-728	3.0	ND	1.8	ND	ND
37	140	10/10/99	VPSV-829	3.0	1.8	ND	1.7	ND
37	140	1/22/00	VPSV-994	4.1	2.6	ND	1.4	ND
37	140	1/22/00	VPSV-995(DUP)	4.3	2.5	ND	1.2	ND
37	155	10/27/98	VPSV-616	26	47	2.3	ND	ND
37	155	3/17/99	VPSV-729	4.4	ND	1.4	ND	ND
37	155	3/17/99	VPSV-730(DUP)	4.5	ND	1.8	ND	ND
37	155	10/10/99	VPSV-830	6.0	1.5	1.6	ND	ND
37	155	1/22/00	VPSV-996	5.8	2.2	ND	1.3	1.1 (Freon 11)
37	170	10/27/98	VPSV-617	23	38	3.0	ND	ND
37	170	3/17/99	VPSV-731	5.8	5.4	1.4	ND	ND
37	170	10/10/99	VPSV-831	6.5	2.0	2.3	1.9	1.1 (Freon 11)
37	170	10/10/99	VPSV-832(DUP)	6.4	2.1	1.9	2.4	1.1 (Freon 11)
37	170	1/22/00	VPSV-997	6.0	2.3	1.3	1.6	1.1 (Freon 11)
37	185	10/27/98	VPSV-618	12	6.5	2.2	ND	ND
37	185	10/27/98	VPSV-619(DUP)	12	6.8	1.7	ND	ND

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well	Depth		Sample					Other
Number	(ft bgs)	Date	Number	CCl₄	Freon 113	TCE	1,1-DCE	Compounds
37	185	3/17/99	VPSV-732	9.3	18	3.5	ND	ND
37	185	10/10/99	VPSV-833	7.4	2.8	4.4	1.8	ND
37	185	1/22/00	VPSV-998	11	5.2	3.4	1.9	1.1 (Freron 11)
38	25	10/27/98	VPSV-620	ND	ND	ND	ND	ND
38	25	3/18/99	VPSV-738	ND	ND	ND	ND	ND
38	25	10/10/99	VPSV-834	ND	ND	ND	ND	ND
38	25	1/22/00	VPSV-999	ND	ND	ND	ND	ND
38	45	10/27/98	VPSV-621	5.6	ND	ND	ND	ND
38	45	3/18/99	VPSV-739	ND	ND	ND	ND ·	ND
38	45	10/10/99	VPSV-835	ND	ND	ND	ND	ND
38	45	1/22/00	VPSV-1000	ND	ND	ND	ND	ND
38	45	1/22/00	VPSV-1001(DUP)	ND	ND	ND	ND	ND
38	65	10/27/98	VPSV-622	15	57	2.2	ND	ND
38	65	3/18/99	VPSV-740	ND	ND	ND	ND	ND
38	65	10/10/99	VPSV-836	ND	ND	ND	ND	ND
38	65	1/22/00	VPSV-1002	ND	ND	ND	ND	ND
38	80	10/27/98	VPSV-623	11	74	1.6	ND	ND
38	80	10/27/98	VPSV-624(DUP)	15	56	2.1	ND	ND
38	80	3/18/99	VPSV-741	ND	ND	1.4	ND	ND
38	- 80	3/18/99	VPSV-742(DUP)	ND	ND	1.3	ND	ND
38	80	10/10/99	VPSV-837	ND	ND	ND	ND	ND
38	80	10/10/99	VPSV-838(DUP)	ND	ND	ND	ND	ND
38	80	1/22/00	VPSV-1003	ND	ND	ND	ND	ND
38	95	10/27/98	NS	W	W	W	W	W
38	95	3/18/99	NS	W	W	W	W	W
38	95	10/10/99	NS	W	W	W	W	W
38	95	1/22/00	NS	Р	Р	Р	Р	P
38	110	10/27/98	VPSV-625	13	43	1.4	ND	ND
38	110	3/18/99	VPSV-743	ND	ND	- ND	ND	ND

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl ₄	Freon 113	TCE	1,1-DCE	Other Compounds
38	110	10/10/99	VPSV-839	9.3	5.8	1.7	ND	1.7 (Chloroform) 1.2 (Freon 11)
38	110	1/22/00	VPSV-1004	8.8	6.0	1.5	ND	1.7 (Chloroform)
38	125	10/27/98	VPSV-626	18	81	1.8	ND	ND
38	125	3/18/99	VPSV-744	2.9	ND	ND	ND	ND
38	125	10/10/99	VPSV-840	3.2	3.6	ND	ND	ND
38	125	1/22/00	VPSV-1005	4.5	4.6	ND	ND	ND
38	140	10/27/98	VPSV-627	18	67	1.9	ND	ND
38	140	3/18/99	VPSV-745	8.6	4.5	1.9	ND	ND
38	140	10/10/99	VPSV-841	6.6	3.4	ND	ND	1.9 (Chloroform) 1.6 (Freon 11)
38	140	1/22/00	NS	W	l w	w	l w	W (1100H 11)
38	155	10/27/98	VPSV-628	17	75	1.8	ND	ND
38	155	3/18/99	VPSV-746	4.9	5.0	2.0	ND	ND
38	155	10/10/99	VPSV-842	6.7	3.6	1.2	1.8	1.1 (Chloroform)
38	155	1/22/00	VPSV-1006	6.6	4.0	1.0	1.3	1.3 (Chloroform) 1.5 (Freon 11)
38	155	1/22/00	VPSV-1007(DUP)	6.6	4.1	1.0	1.3	1.5 (Chloroform) 1.5 (Freon 11)
38	170	10/27/98	VPSV-629	22	103	3.0	ND	ND .
38	170	10/27/98	VPSV-630(DUP)	24	112	3.4	ND	ND
38	170	3/18/99	VPSV-747	12	24	4.4	ND	ND
38	170	3/18/99	VPSV-748(DUP)	11	24	4.4	ND	ND
38	170	10/10/99	VPSV-843	8.1	4.9	3.9	1.4	1.1 (Freon 11)
38	170	10/10/99	VPSV-844(DUP)	5.6	3.5	2.9 3.2	1.3	1.1 (Freon 11
38	170	1/22/00	VPSV-1008	6.7	6.3	3.2	1.4	1.0 (Freon 11
39	20	10/28/98	VPSV-631	ND	ND	ND	ND	ND
39	20	3/15/99	VPSV-701	ND	ND	ND	ND	ND
39	20	10/11/99	VPSV-845	ND	ND	ND	ND	ND

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl ₄	Freon 113	TCE	1,1-DCE	Other Compounds
39	20	1/23/00	VPSV-1009	ND	ND	ND	ND	ND
39	35	10/28/98	VPSV-632	ND	ND	ND	ND	ND
39	35	3/15/99	VPSV-702	ND	ND	ND	ND	ND
39	35	10/11/99	VPSV-846	ND	ND	ND	ND	ND
39	35	1/23/00	VPSV-1010	ND	ND	ND	ND	ND
39	50	10/28/98	VPSV-633	ND	ND	ND	ND	ND
39	50	3/15/99	VPSV-703	ND	ND	ND	ND	ND
39	50	10/11/99	VPSV-847	ND	ND	ND	ND	ND
39	50	1/23/00	VPSV-1011	ND	ND	ND	ND	ND
39	70	10/28/98	VPSV-634	ND	ND	ND	ND	ND
39	70	3/15/99	VPSV-704	ND	ND	ND	ND	ND
39	70	10/11/99	VPSV-848	ND	ND	ND	ND	ND
39	70	1/23/00	VPSV-1012	ND	ND	ND	ND	ND
39	70	1/23/00	VPSV-1013(DUP)	ND	ND	ND	ND	ND
39	85	10/28/98	VPSV-635	3.7	66	1.5	ND	ND
39	85	10/28/98	VPSV-636(DUP)	3.9	78	1.6	ND	ND
39	85	3/15/99	VPSV-705	ND	38	ND	ND	ND
39	85	3/15/99	VPSV-706(DUP)	ND	39	ND	ND	ND
39	85	10/11/99	VPSV-849	6.3	48	1.4	ND	ND
39	85	10/11/99	VPSV-850(DUP)	7.7	47	2.5	ND	ND
39	85	1/23/00	VPSV-1014	5.8	44	1.7	ND	ND
39	100	10/28/98	VPSV-637	7.9	77	3.3	ND	ND
39	100	3/15/99	VPSV-707	1.2	73	1.4	ND	ND
39	100	10/11/99	VPSV-851	9.0	46	3.3	ND	ND
39	100	1/23/00	VPSV-1015	7.6	51	2.3	ND	ND
39	110	10/28/98	VPSV-638	9.8	67	4.7	ND	ND
39	110	3/15/99	VPSV-708	1.8	37	3.4	ND	ND
39	110	10/11/99	VPSV-852	12	55	3.2	ND	ND
39	110	1/23/00	VPSV-1016	11	52	2.8	ND	ND

SUMMARY OF SOIL-VAPOR RESULTS ALL LONG-TERM SAMPLING EVENTS COMPLETED TO DATE

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (ft bgs)	Date	Sample Number	CCl₄	Freon 113	TCE	1,1-DCE	Other Compounds
39	120	10/28/98	VPSV-639	6.5	50	10	ND	ND
39	120	3/15/99	VPSV-709	ND	7.0	15	ND	ND
39	120	10/11/99	VPSV-853	4.9	16	17	ND	ND
39	120	1/23/00	NS	Р	P	Р	Р	Р
39	130	10/28/98	VPSV-640	6.2	50	15	ND	ND
39	130	3/15/99	VPSV-710	ND	5.2	12	ND	ND
39	130	10/11/99	VPSV-854	2.0	9.0	15	ND	ND
39	130	1/23/00	VPSV-1017	1.5	7.9	10	ND -	ND

Notes:

bgs - Below ground surface.

DUP - Duplicate samples.

J – Estimated concentration; result exceeded calibration range.

ND - Not detected.

NS - Not sampled.

P - Sampling port plugged.

W - Sampling port inundated with water.